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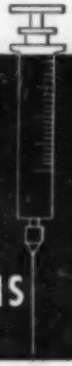

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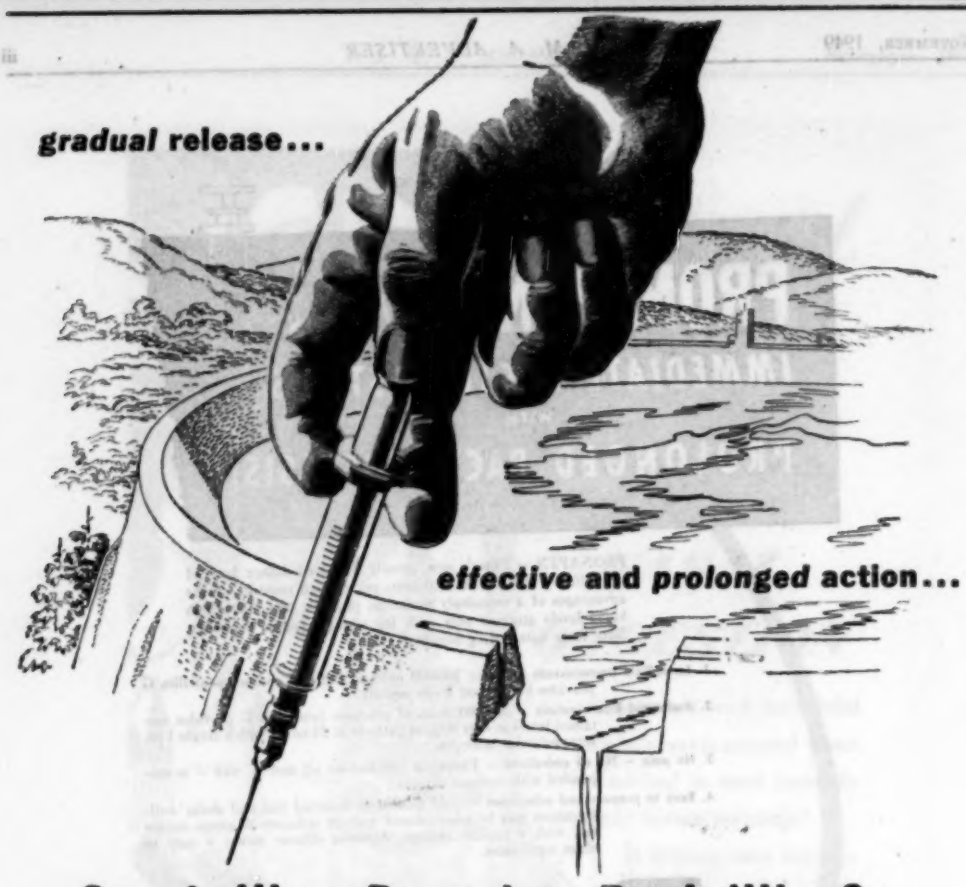

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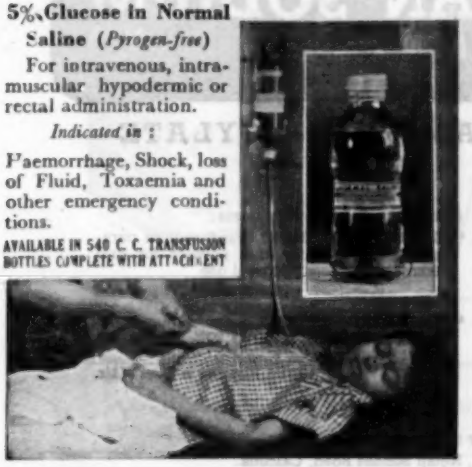

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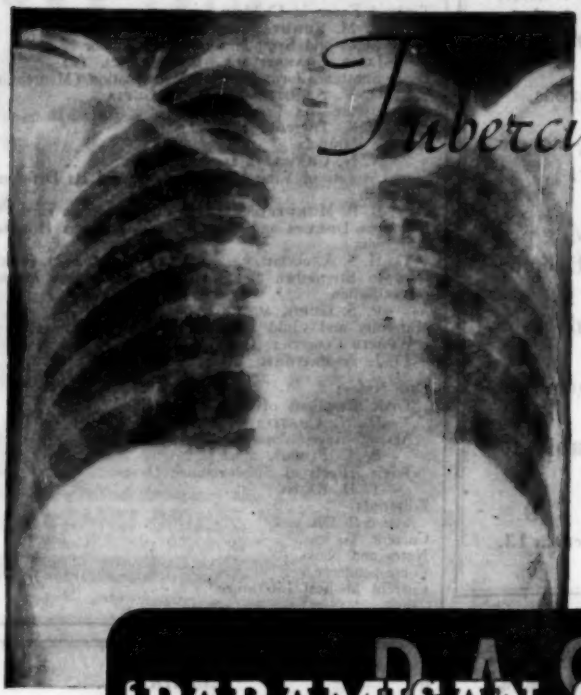

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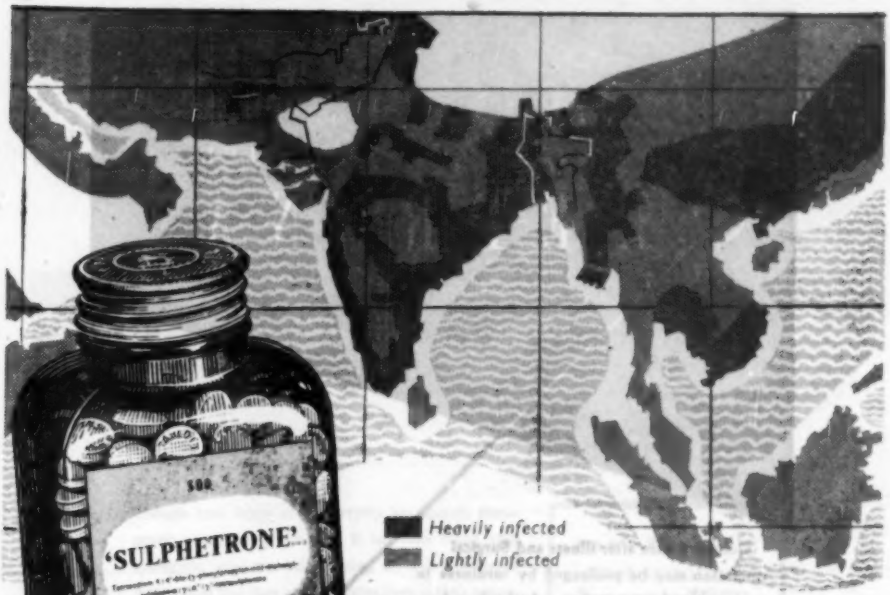

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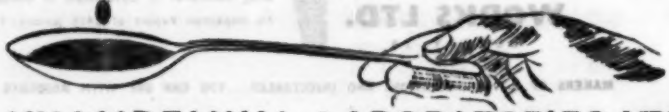

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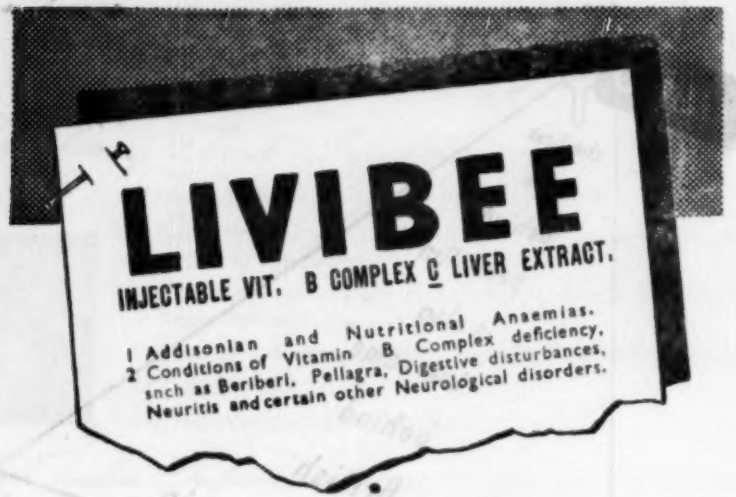

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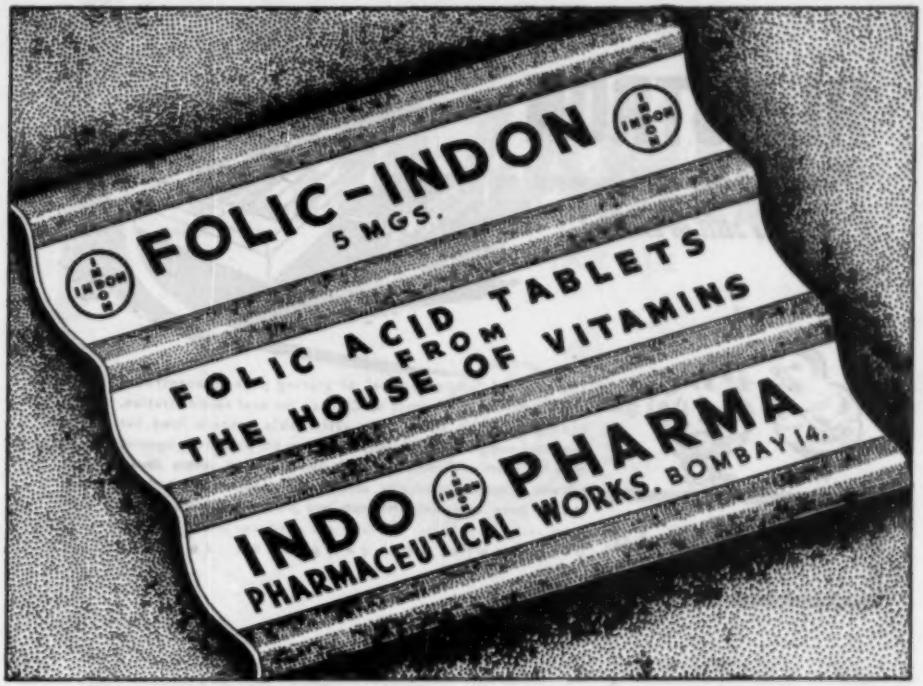

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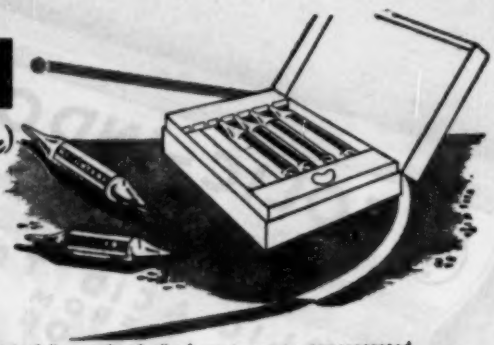

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TYPHOID FEVER IN CHILDREN*

K. M. SUKHTANKAR, M.B., D.C.H., D.P.H.

Bombay.

The subject of my talk in to-day's meeting is, "Typhoid Fever in Children." There is much to talk on the subject. I am not going into the book picture of this condition, but will restrict myself as far as possible to the pictures I have seen in the Byramjee Jeejeebhoy Hospital for Children in Bombay, from September 1947 to September 1948. I shall describe the signs, symptoms and complications which I have seen, the investigations which were done and the treatment which was followed in this hospital. This subject was selected by me after reading in the year book of Pediatrics 1945, about the special treatment of typhoid fever and that is with penicillin and sulphathiazole. I have studied during this short period about 25 cases of typhoid fever, out of which twenty-two cases were treated with penicillin and sulphathiazole. I am glad to tell you that I am very fortunate to do this short work under the able direction and advice of my teacher, Dr. George Coelho.

Aetiology

Incidence—Typhoid fever prevails especially in temperate climates. It is widely distributed throughout the world. In India it is far from uncommon. Twining pointed out, that in 1832, a fever often prevailed in Bengal, which proved fatal under typhoid symptoms and in which the small intestines were found ulcerated after death. Ewart and Peet have recorded numerous cases of fever occurring in various parts of Bengal, Madras and Bombay Presidencies. It presents everywhere the same essential characteristics and is an index of sanitary intelligence of a community. To-day it is more prevalent in districts than in cities because of the contaminated water supply and imperfect sewage. Thus the propagation of the disease is largely from the country to the city. In Bombay and in suburbs, typhoid fever is in endemic form. From the statistics drawn by the Bombay Municipality it is seen that the incidence is very high in overcrowded localities. This year, the prevalence of typhoid in epidemic form collaborates with the Municipal report of 1944, 1945 and 1946, as shown against the areas affected. From the beginning of August to the end of October 1948, there were 1,391 attacks and 455 deaths.

Children who share the same food as adults suffer from the infection as frequently as adults, if not more. The predisposition to enteric fever is much influenced by age, the disease being chiefly met with in youth and adolescence. It is frequent in childhood but infants are attacked rarely. Dr. Coelho had diagnosed typhoid fever in a child 6 months old. Dr. Sanzgiri has reported one in a case 5 months old. Youngest child in the B. J. Hospital, Bombay, was found to be one year old. Thus we can say that the disease may affect any age. Incidence of typhoid fever in children is less as compared with bacillary infections.

Age Incidence in 25 cases—0-4 years—Nil, 4 years old—1 case, 5 years old—6 cases, 6 years old—1 case, 7 years old—4 cases, 8 years old—1 case, 9 years old—2 cases, 10 years old—6 cases, 11 years old—1 case, 12 years old—3 cases.

Bombay City Fever Hospital showed the following age incidence:—

In 207 cases: 1 year—1 case, 2 years—4 cases, 3 years—3 cases, 4 years—9 cases, 5 years—9 cases, 6 years—5 cases, 7 years—15 cases, 8 years—24 cases, 9 years—23 cases, 10 years—45 cases, 11 years—23 cases, 12 years—47 cases.

From the above figures it is seen that younger children, and particularly infants, seldom acquire typhoid fever. The infrequency of infantile typhoid is due to limited opportunity of contacts with the organism rather than to any other degree of immunity. Unless the mother, nurse or aya happens to be a carrier, infants are not likely to be exposed. Majority of the cases are above 7 years in both the hospitals. It is common at this age because this is a school-going age and majority of us know that at this age we used to buy food at the school gates. This food is the common source of infection. Ice fruits, fruit salads prepared from over-ripe fruits, Bhel prepared from cheap vegetables and other oily things and the ice *sharbat* which is well mixed with road dust are the common things seen popular at the school gates.

Sex—Typhoid bacillus has got equal affection for both sexes. This may be true in adults, but in children, males are more affected because boys eat the above infected things at the school gates. In our hospital record, there are 16 males out of the total of 25 patients.

* Read at the Scientific Section of the Silver Jubilee Session of the All-India Medical Conference, held in Calcutta, Dec., 1948.

Seasonal incidence—In Bombay, typhoid fever is endemic. The incidence goes on rising from May reaching its peak in August. In our hospital, out of 25 cases, 5 cases were admitted from January to April. 15 cases from May to October, 5 in November and December. The City Infectious Hospital of Bombay shows the seasonal incidence as given below: —Out of 208 cases in the last 5 years, 26 cases were admitted from January to April, 148 from May to October and 34 cases in November and December. Osler says, "Typhoid fever is essentially an autumnal fever and more than half his cases were admitted in August, September and October." Our figures show the same seasonal incidence. From the figures drawn by the Bombay Municipality from 1940-1947, the number of attacks and deaths of typhoid fever is increasing year after year, and from 1943 to 1946, the number is quite high. This may be due to overcrowding, poor diet, scarcity of water, etc. Dr. Das Gupta, the Health Officer of the Bombay Municipality, is of opinion that typhoid fever in Bombay may be frequently contracted from infected milk. Convalescent and healthy carriers are frequent sources of infection. Out of 25 cases, history of typohid fever in the family was available in two patients only. It has been variously estimated that after recovery from typhoid fever, 1 to 5 per cent of the patients remain carriers for a period, varying from a few weeks, months, to many years.

Clinical Picture

Mode of Onset—In the majority of our cases, we do not know the mode of onset, as these children are brought in the hospitals usually in the second week or later. Out of the 25 cases 11 cases were admitted at the end of first week, 9 patients after 15 days, 4 after 20 days and 1 patient was admitted about three weeks after the first attack of typhoid fever. Majority of the patients were brought for continuous fever. 8 cases were acutely ill and toxic when admitted, 2 cases were semi-conscious, 1 had continuous fever and 2-3 attacks of epistaxis in the first week, one had vomiting at the onset of the fever, 3 had cough and continuous fever, 2 had rigors and intermittent temperature. The rest had remittent type of fever.

The symptoms preceding the actual onset of the disease are very difficult to elicit in infants and young children. With abrupt onset there is sudden rise of temperature and vomiting. Convulsions rarely occur. Chill or chilliness was frequently complained of by the older children at the onset and headache was more frequently noted than any other single symptom except fever.

Physiognomy—It is very difficult for me to describe the change in the countenance in typhoid patients. I had eight patients who were looking acutely toxic and ill when admitted. Two patients were semi-conscious.

General condition was very poor in three cases and fair in the rest. Four patients gradually became emaciated. Out of these four, one died of perforation later on, and one died of peripheral circulatory failure. In this latter case, the condition of the patient from the beginning was not good. He was very toxic from the time of his admission. He was given nasal feedings. His temperature touched normal in about 2 weeks' time and remained normal for three days. His general condition was good then and he was taking food by mouth. On the fourth day, temperature again went up to 103° and 104°F. and was continuously high. He was toxic and the general condition began to deteriorate. He died in the fifth week.

Temperature—In almost all cases, temperature at the time of admission was 101°-104°F. Majority showed later on the remittent type of temperature. Two showed intermittent temperature. Such a temperature with an enlarged spleen often suggests malaria. One of the two cases showed malaria parasites in the blood film. This case responded to paludrine. Widal reaction was strongly positive showing clearly the possible association of these two fevers. The typical temperature curve is not unusually seen in young children but is well observed in grown up children. In this series of 25 cases, not a single case showed plateau in temperature. In 3 cases, the temperature was irregular. In children it is quite common to get rigors. Three patients had rigors at the onset. Two cases were getting rigors in the hospital. In one, as I have already said, M.P. were found in the blood film. In two cases, extremities were cold even at the height of the fever. 4 cases were perspiring on the face and forehead in the 3rd and 4th weeks. In 14 cases the temperature came down to some extent with the administration of penicillin and sulphathiazole. In two cases temperature came down by crisis—in one there was a leaking perforation of the intestine, proved later on by operation, while the cause in the other is not known. Other intestinal complications, such as diarrhœa, constipation, tympanitis etc. had no effect whatsoever on temperature. Secondary skin infections like abscess, boils, bedsores and impetigo do affect the temperature. In our series, 2 patients had bedsores—one on the scalp and gluteal regions. One had boil in the axillary region, one had impetigo. Some of the children looked ashy pale at the beginning of the rise of temperature.

Alimentary System—Tongue—In the majority of our cases, the tongue was thinly furred in the beginning, while its tip and margin were unusually red. In some cases it remained in this state throughout the attack. In other cases it became thickly coated in the centre with the margin and tip clear. During the period of convalescence, tongue of 17 patients became clean and moist. 3 patients had red raw tongue with granular tip. One patient's tongue was magenta coloured. One had atrophied papillae and few transverse fissures. The tongue of two patients was almost clean and moist throughout the attack. A peculiarity of the tongue is its unusual redness, which may be confined to the tip and edges or extended over the entire surface. An-

other character of the tongue is the existence of transverse fissures often deep and painful. In one case tremors of the tongue were marked in the 3rd week. This patient was very much emaciated. He used to have irregular loose motions and therefore was kept for a long time on protein milk and banana. Tremors disappeared gradually as the patient's general condition began to improve. In the majority of toxic cases, the tongue was thickly coated and there was offensive smell in the mouth. Lips were cracked in three cases. Cheilosis was present in 4 cases. Sordes collected on the teeth of 8 patients who were in the typhoid state. Catarrhal stomatitis and gingivitis were present in two cases only. This was producing great distress. There was excessive flow of saliva in these cases. Signs of vitamin B deficiency were marked in the majority of the cases who were on liquid diet. Other deficiencies commonly observed were: (1) vitamin A deficiency showing marked phrynoderma, (2) iron deficiency leading to anæmias. Blood count report showed this in 48 blood counts—19 had hypochromic and 17 patients had hyperchromic anæmias. Thirst was marked in 4 cases. This is an important sign in adults. Children take large amounts of fluid and so thirst is not common in them. Dehydration was present in 3 cases. Appetite is usually lost. It was good in 6 cases throughout their stay in the hospital. Moderate appetite in one case and poor appetite in 11 cases. 4 cases were given nasal feeds. Nausea and retching was present in four cases. Vomiting was present in one case at the onset of fever. Three patients had vomiting in the ward. Out of these, two had vomiting after taking milk, while in one, it was present after perforation. In two out of the eight toxic cases, vomiting was present during the toxic stage.

Abdomen—In the majority of the cases, the abdomen was doughy from the day of admission. In 3 patients it was soft on palpation in the beginning, but soon it became doughy. Moderate distension was present in most of the cases who were on full diet. In one case abdomen was retracted. This patient showed signs of meningitis but the C.S.F. was normal chemically and bacteriologically even after repeated examinations, thus excluding T. B. meningitis. Widal reaction confirms the diagnosis of typhoid fever. In nearly all cases peristalsis was well heard on auscultation. In the case of perforation, they were absent when perforation took place. In another case, they were absent and in addition to this sign, patient complained of pain in the abdomen. Operation revealed nothing. He however became all right after the operation. Six patients complained of pain in the abdomen, especially round about the umbilicus. Out of these 6, one had passed round worms, one showed round worm ova when the rectal swab was examined and one had perforation of the intestine. Other causes may be tender intestine, constipation, cholecystitis. The liver was palpable in 14 cases, and the spleen in 8. Slight icterus was observed in 4 cases.

Bowel Movement—Regular in seven cases, constipated in 13 cases, mild diarrhœa in one case and severe diarrhœa in one case. The record of infectious disease hospital of Bombay shows diarrhœa in six cases out of 75. Constipation was present in nearly all cases. Obstinate constipation was not present in a single case. The above figures clearly show that diarrhœa is less frequent than constipation though the infection is located primarily in the intestine. Constipation is welcomed in children, but obstinate constipation is not good as hard fœcal masses cause ulceration of the bowels. Stools were generally offensive. They were fairly well formed to soft in consistency. Usually the bowels were opened once a day or on alternate days. Diarrhœic stools were offensive; large offensive flatus was passed irrespective of diarrhœa or constipation. Rectal swab examination gave the following findings:

18 cases showed nothing abnormal pathologically; round worm ova in two cases, cyst of giardia lamblia in one case, Balantidium coli in one case, few pus cells in three cases.

Respiratory System—Epistaxis is more common in the early stage. I had one case who had epistaxis in the first week. Throat congestion in 13 cases. 15 cases showed abnormal respiratory signs and symptoms, bronchitis being the commonest. The record of the City Fever Hospital collaborates with our readings. Lobar pneumonia in 2 cases, bronchopneumonia in 2 cases, pleurisy in one case, catarrh of the lungs 3 cases, enlarged hilar glands one case, pulmonary œdema in one case. Out of the 75 cases of the Bombay City Fever Hospital, lobar pneumonia in 7 cases, bronchopneumonia in 14 cases, catarrh in one case, pulmonary œdema in one case. The physical signs improved with penicillin and sulphathiazole administration.

Cardiovascular System—Pulse values more than Widal reaction. During the early stage pulse rate is increased but not in proportion to the fever. In older children pulse is like adult pulse and is relatively slow. In infants and younger children pulse rate frequently reaches 150-180 p.m. which in older patients would certainly be considered as an unfavourable sign. In the late stages it is more rapid, feeble and small. Dicrotic pulse which is very common in typhoid fever in adults, was found in 2 cases in my series. Volume and tension was good in the majority of the cases. In the case of perforation, pulse was poor in volume and tension. Blood pressure—only in two cases showed subnormal reading. Heart—The size was normal in all cases.

Heart Sounds—Systolic murmur was heard in one case in the mitral area for about 5-6 days only.

Rose Spots—In two cases, 8-10 spots, about 1-2 mm. in diameter disappearing on pressure, macular in character were found in the abdominal wall on the eighth day of the fever.

Genito-urinary System—In nearly all cases urine was passed freely. In the present typhoid epidemic in Bombay, there is oliguria in many patients. These patients soon become œdematous and urine reports show increased albumin, presence of pus cells, R.B.C.s and casts. Thus we see a nephritic picture in association with the typhoid infection.

Out of my 25 cases the chemical examination of urine showed trace of albumin in 10 cases, bile pigment in 2 cases. Microscopic examination showed epithelial casts in 3 cases and 3-4 pus cells in nearly every case.

Central Nervous System—As far as the nervous system is concerned individual and constitutional peculiarities make themselves strongly felt here. Thus there are children who dream away or sleep away their typhoid fever, others again behave peculiarly at the beginning and often become very restless, delirious, have fantasies and keep in constant activities. These children require strict and constant supervision and guard. I had 3 cases of this type. In severe cases especially in older children with long high fastigia and under-nourishment there develops the picture of status typhosus. These cases often show the signs of encephalitis. Out of 25 cases 8 were toxic and acutely ill at the time of admission. 6 patients were drowsy, 2 unconscious, 4 very irritable and restless.

All these toxic patients showed signs of meningo-encephalism (namely, heaviness of the head, rigidity of the neck, sluggish or absence of pupillary reaction, squint, absence of superficial reflexes and brisk deep reflexes). Kernig's sign was present in 3 out of 8 cases. Lumbar puncture was done in all these cases. Fluid was clear, of moderate to increased tension; proteins normal or slightly increased; cells 8-10, lymphocytes predominating. Other findings are normal. Post-typhoid insanity was observed in one case. This patient showed signs of encephalitis during the attack. He became mentally normal as the nutrition improved.

Complications—The Bombay City Infectious Hospital record of 75 cases showed complications in 43 cases. I have already mentioned complications in the lungs, C.N.S. and C.V.S., alimentary system that were observed in B. J. Hospital. Other complications were as follows:—

Parotitis in 3 cases, bilateral in one case.
Deafness in 2 cases.
Otitis media in 2 cases.

Investigations

I have spoken about the reports of urine, stools and cerebrospinal fluid.

Blood Examination—Total W.B.C. count shows leucopenia in 24 counts, moderate leucocytosis in 13 counts, 19 counts showed relative lymphocytosis. There is a general tendency of labelling any continuous fever with a furred tongue, slight abdominal distension or a few gastrointestinal symptoms, which do not yield to sulpha drugs or a diaphoretic mixture as typhoid and if the temperature is moderate it is labelled as paratyphoid. This diagnosis is not at all justifiable. However suggestive, the signs and symptoms may be, no fever may be labelled as typhoid without a positive blood or stool culture or failing that a positive agglutination test, keeping in mind previous antityphoid inoculation. In our hospital out of the total of 66 blood reports for agglutination tests 51 gave positive findings. The first week had 6 reports, second week 13, third week 10, fifth week 5 and sixth week 3 reports.

Blood cultures—In all, 4 blood cultures were positive. One in 1st week, 2 in the second week and one in 3rd week.

Stool and urine cultures were not successful.

Differential Diagnosis

In children there are other conditions which stimulate typhoid fever clinically. Widal reaction helps in diagnosis. I shall put before you those conditions which we at first diagnosed as typhoid but later on blood agglutination test and other investigations gave us real diagnosis.

(1) Heat fever—This is more common in infants from 6 months to about 36 months in the months of April, May, June and October. There is diurnal fluctuation in temperature and because of restricted diet, this condition is usually accompanied by diarrhœa or constipation. Tongue is furred and there is loss of appetite; Widal reaction is negative. We came across such cases in the out-patient's department.

(2) Primary tubercular complex with or without evident enlargement of mediastinal glands.
(3) Upper respiratory tract infections.
(4) Otitis media.
(5) Interlobar pleurisy.
(6) Pneumonia—2 cases.
(7) Rheumatic carditis—1 case.
(8) Paratyphoid—2 cases.
(9) Unknown pyrexia—1 case.

In the out-patient's department I came across one case of round worm infestation. There was definite history of passing round worms. Other signs were similar to typhoid fever. Stool examination showed plenty of round worm ova. Widal reaction was negative. Oleum chenopodium made him all right.

I have already dealt with one more condition that is malaria. One case at first from the history of fever with rigors and intermittent temperature I thought of malaria. Pahudrine was given. Blood film was examined twice. No M. P. detected. The temperature did not come to normal even after 6 days. Blood was sent for Widal test. It was positive.

Associated Conditions—Malaria and typhoid in 2 cases. (2) T. B. infiltration and typhoid in one case. (3) Enlarged mediastinal glands and typhoid in 2 cases. (4) Upper respiratory tract infection and typhoid in 13 cases. (5) Round worm infestation and typhoid in 2 cases.

Prognosis

In typhoid fever in children except for bronchopneumonia the prognosis in the principal complications, namely perforation and hæmorrhage has not been greatly improved by modern treatment. Another important complication namely toxæmia is much less now a days than before and this is because of treating the patient with full diet and penicillin injections along

with oral administration of sulphathiazole in full doses. Hæmorrhage can be prevented or ameliorated by large doses of vitamin C and calcium injections. Our hospital record shows that prognosis is brought to a better state by keeping the patient on full diet as far as possible. From September 1947 we have gone one step ahead by starting penicillin and sulphathiazole treatment. The following figures will give an idea of how the mortality rate is becoming less. Side by side I am giving you figures of attacks and deaths in the City Infectious Hospital where soft diet in the form of pudding, bread and butter, eggs (boiled), banana, rice, etc. is given but penicillin and sulphathiazole treatment is not followed.

	B. J. Hospital		I. D. Hospital	
Year	*Attacks*	*Deaths*	*Attacks*	*Deaths*
1942	31	4	26	6
1943	44	4	16	5
1944	25	7	36	6
1945	8	2	Not available	
1946	38	9	82	11
1947	42	2	48	1
1948 upto Sept. ..	20	2	Not available	

These figures give us at least some idea of the change in prognosis from high mortality to low by giving the patient full diet from the very beginning and penicillin and cibazol treatment after the diagnosis is confirmed by either blood culture or Widal reaction. Poorly nourished children or those who have been debilitated by some constitutional or acute diseases have a less favourable prognosis than those who are robust. Today we can say that prognosis is somewhat better than before. Prognosis depends upon (1) virulence of the epidemic, (2) severity of the disease, (3) previous health, (4) resistance of the child to the infection. It is seen from the hospital records that the younger the child lesser the complications and prognosis is better. Out of 25 B. J. Hospital cases 2 patients of about 10 years age died. City Hospital record showed upto 8 years out of 69 attacks 7 deaths. 9-12 years out of 139 attacks 22 deaths.

Treatment

General Management—It is strictly seen that good nursing and correct hygienic management which are still the most important points in the treatment of typhoid fever are rigidly followed in our hospital. Rest in bed is very essential. But this cannot be observed very strictly in children. They move about when the temperature goes down, go to lavatory, squat for a stool rather than taking a bed pan, so far this did not meet with danger. This shows that a certain amount of lattitude may be tolerated. Older children are placed in bed and kept there constantly. The use of bed pan and urinal is insisted upon. Their beds are kept smooth to prevent the occurrence of bed sores. From my record you have seen that there are only 2 cases of bed sores. These were treated with sulphathiazole ointment. Mothers are given instructions that the position of the child in bed must be changed from time to time. This prevents hypostatic congestion of the lungs and occurrence of bed sores. The mouth, tongue and teeth of the little patient are kept scrupulously clean by the use of a mild antiseptic wash. This precaution prevented stomatitis and other infection of the mouth. 3 patients were very toxic and irritable. Their mouths were not properly clean. In these patients later on a swelling in the parotid region was seen. This was treated with sulphadiazine orally, and with the application of glycerin belladonna locally in the parotid region. Mouth is cleaned with antiseptic wash. Skin is kept healthy by regular daily sponging and application of antiseptic powder especially over the pressure points. Only one patient had developed boils in the mid-axillary region and one developed impetigo. Boils were treated by injecting penicillin 1-1000 into them while for impetigo we used 1 per cent gentian violet in water. Enema was given to those who could not pass stools on their own. We used simple soap water when there was no distention. In the presence of distention we used turpentine enema and turpentine stupes. In one of my patients, I had to carry on hydrotherapy. The patient's temperature went up to 106°F. He was restless and irritable. We wrapped the child in a sheet soaked in the tap water with an ice bag on his head. Sheets were removed soon after the fall of temperature to 100°F.

Nutrition of the Child—Till 1942-43 the diet for typhoid fever patients in B. J. Hospital used to be skimmed milk with tea or coffee and butter milk. This diet was continued till the child had no fever. These patients suffered from abdominal distension and discomfort. Occurrence of fæcal impaction was very common especially in older children. Emaciation anæmia and other deficiency ailments were very common in these patients. Since the last 3-4 years, Dr. Coelho introduced the following diet for the patients from the day of admission. Bread, butter, banana, milk with tea or coffee, rice, minced meat and liver, ice cream etc. Experience taught us that this diet makes the patient look brighter and less toxic Dr. Coelho was the supporter of the liquid diet upto 1944-45. One day a child who was in a dying condition asked for Khima and Dr. Coelho had prescribed it to satisfy the patient's last desire on this earth. On the next day he saw the patient somewhat brighter and looking at him with a smiling face. Dr. Coelho added bread, rice to Khima. Like that with daily addition he came to full diet with surprisingly good results. He tried the same full diet since then for all patients, and now we see undoubtedly good results. Patients should be given as much as they want. The administration of such a diet had no deleterious effect on the patient. The range of temperature, the frequency of stools and toxæmia were not affected badly. Patients did not complain of abdominal pain or discomfort after the food was given; 3 patients had complained of pain. We have given them mist. carminative and continued the same diet. Complications like diarrhœa and perforation were seen to be more common in those to be kept on liquid diet, such as glucose water, milk or butter milk.

The full diet treatment is definitely beneficial to the course of illness and the prognosis is much better. Full diet should include adequate carbohydrates and limited amounts of protein. Because by giving a large amount of proteins, products of nitrogenous wastes are added to those from destruction of the nitrogenous tissues. This increase throws strain upon the kidneys, adds to toxæmia and raises the temperature. We usually give 3-4 small pieces of meat or liver, or 2-3 tablespoonfuls of minced meat or minced liver. Even in the presence of loose bowels, we gave banana protein milk and minced cooked liver. Banana upto 10 per day, white of about 10-12 eggs and 2-3 tablespoonfuls of meat can be given safely. In younger children boiled milk preferably protein milk was given in the same quantity as in the child's accustomed diet. On account of its rapid utilisation and protein sparing property sugar is given in liberal amounts. The old idea which is still held by many and which is based on the pathology of the intestine that a diseased intestine cannot assimilate and digest solid food is wrong. By the time the food reaches the diseased part of the intestine it is well-digested and is in the assimilable form. By supplying full diet, protein is supplied in sufficient amount to make up for the loss of body protein. There is great increase in the destruction of the nitrogen containing tissues while the main carbonaceous components of the body such as fat are affected in a much smaller degree. Nitrogenous tissues are destroyed in fever by the action of toxin and by starvation. We cannot give a large amount of proteins because it increases the products of nitrogenous wastes and flood the circulation with these products. This throws the strain upon the kidneys and also add to toxæmia. Therefore protein sparers and preferably carbohydrates are used. When the temperature comes to normal protein supply should be increased with advantage. From the experience of our hospital records and that of the City Fever Hospital I have marked that the patients who were brought late in the hospital are generally toxic because they are all on liquid diet and the fluid administration is also insufficient. Mortality also is very high in these cases.

Special Treatment with Penicillin and Cibazol—Joseph Bigger reports that in broth freed from substances antagonistic to sulphanilamide drugs, sulphathiazole inhibits the growth of E. typhus to a considerable extent. It has also some bactericidal effect. But only on a small inoculum. Penicillin in concentration upto 8 units per c.c. reduced but did not prevent the growth of the same in broth. However the combination of penicillin and sulphathiazole had had beneficial effect on the bacillus. Even if a patient is not benefited by the treatment, it certainly does no harm. He suggested sulphathiazole in full doses according to age, 4-hourly and penicillin about 50,000-60,000 units 3-hourly for 5 days and preferably for 7 days. Fever may occur during this time as the result of release of toxic substances from the killed bacteria. Both drugs are discontinued at the same time and the patient is observed for the presence of any more bacilli. If more are found treatment is continued for another four days. According to McSweeney, the treatment should be started during the later stages of illness when the symptoms of the disease are fully developed. We have started Joseph Bigger's line of treatment after seeing the blood culture or Widal reaction as positive. 25 patients are treated on this line. 8 patients were very toxic. Toxicity disappeared in 7 cases at the end of the course of 5-7 days. The 8th case did not respond so much at the end of the first course. After 4 days rest, again another course for 7 days was given and the patient became all right. Another advantage of this treatment is that it is helpful in treating and preventing lung complications. As for the effect on temperature it was seen in our cases, that it came to normal in 11 cases out of 25. In 3 patients it came down to 100°F. from 104-103°F. In one case we have tried procaine penicillin 1 c.c. daily for 10 days. This patient was very toxic and was getting convulsions. He had lungs signs and was being given nasal feeds. He was discharged completely cured.

Symptomatic treatment—Diaphoretic mixture for fever.

For toxæmia and dehydration 5 per cent glucose saline I.V. or subcutaneously—150-200 c.c. In the persence of toxæmia, pallor, refusal to take feeds, poor general condition and running of high temperature blood transfusion is badly needed. 3 patients were given B.T. in our cases. 200-250 c.c. is usually given. If blood pressure is low cortical extract of adrenal gland is given, 1 c.c. of doca I.V., with normal saline or 12½ per cent glucose saline, twice a day preferably. For high temperature hydrotherapy is done.

Treatment of complications—Lung complications were treated with sulphadiazine and penicillin; diarrhœa with mist. bismuth cum creta for a day or two and then mist. acid hydrochlor dilute. Treatment of complication is already described at different places.

Treatment during convalescence—For loss of appetite acid hydrochlor dilute with glycerin pepsin mixture and yeast tablets.

In case of stomatitis or for other vitamin B deficiency signs—Vitamin B complex given by injections or orally.

For anæmia—Ferrous sulphate orally. Liver extract injections or by mouth.

This then is the outline of treatment. There is nothing original about what I have said. The methods are gleaned from here and there and smoothed out into a routine after buffetings and some bitter experiences I shall feel I have done something useful if a few of you, particularly colleagues of my age, derive some benefit from a point here and there.

I like to conclude by saying that typhoid fever must be treated with full diet, penicillin injections and sulphathiazole tablets by mouth.

EARLY SIGNS AND SYMPTOMS OF BRAIN TUMOR

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The brain is a common site of origin for neoplasms. In an analysis of 15,481 consecutive tumors from all parts of the body in the records of Middlesex University, St. Bartholomew, and St. Thomas Hospitals in London, 287 tumors of the brain were found, an incidence of 1·8 per cent. Similarly extensive studies in the United States of America showed that 2·5 per cent of all tumors were primary in the brain. Whatever one may think of the value of such statistics the figures show at least that tumors of the brain are more common than generally supposed.

The past thirty years have seen a remarkable advance in the knowledge of intracranial new growths. The surgical methods of dealing with such tumors have been greatly improved. The pathological nature of these lesions has been extensively investigated and classified, with the result that the clinical course of each type of tumor and its ultimate prognosis has been established. Our knowledge of the localizing signs and symptoms of these intracranial tumors has grown by leaps and bounds. But these advances lie primarily with the specialist, the neurologist and neurological surgeon. Patients in India have not had the privilege or opportunity of having such specialists until very recently. Not much benefit can be obtained if cases come to the specialist for diagnosis, localization and treatment of the brain tumors at a time when there is little doubt of its presence. The early recognition of these tumors lies primarily in the sphere of the general practitioner. It is only by their help that the condition can be diagnosed early, and proper treatment given before the patient is paralysed, blinded or ruined for life.

The purpose of this discussion is to emphasize the early manifestations of such tumors as evidenced by their signs and symptoms. It is very essential to realise that the so-called 'cardinal' signs of brain tumor are those of the advanced stage of the disease. We have all been taught that the diagnostic triad are headache, vomiting and choked disc. These, however, are rarely early manifestations and if we are to relieve these unfortunate patients without making them hopeless cripples, we must make the diagnosis before such sign and symptoms are prominent. Although most of the patients suffering from tumor of the brain present these symptoms at some time in the course of their disease, it should be emphasized that these are evidences of increased intracranial pressure, and not signs of brain tumor *per se*. They usually indicate that the tumor has already reached considerable size and that the intracranial contents are not capable of accommodating it. Usually such large tumors have already done permanant damage to the brain tissue and they present formidable surgical problems. The rapid increase of intracranial pressure, manifesting the 'cardinal' signs and symptoms, is due to blockage in the circulation of the cerebrospinal fluid, brought on by the site and size of the tumor.

There is only one manifestation of an intracranial tumor, which is truly of diagnostic significance and that is *progressive loss of neurological function*. There are very few other pathological states which give rise to increasing loss of function of some definite portion of the nervous system. The deficit of neurological function and the rate of progression of the syndrome depend on the location and the pathological nature of the tumor. The most frequent cause of the onset of seizures for the first time in life, between the ages of 35 and 55 years is cerebral neoplasm. This fact is often not remembered and hence many cases are misdiagnosed. Headaches of increasing severity and frequency, unexplained recurring vomiting and gradually failing vision should draw ones attention to an expanding intracranial lesion.

The following briefly cited cases serve to illustrate these points. Had the condition in these cases been recognised early, as it might well have been, untold miseries could have been avoided and excellent results might have been obtained by proper surgical intervention.

Case I was referred to us from Bangalore, two weeks after the opening of the department of Neurology and Neurosurgery in the Christian Medical College, Vellore. The other four cases cited below were chosen from cases I had in the University Clinics, University of Chicago, U.S.A. They illustrate clearly the need of co-operation and vigilence of the general practitioners.

Case Reports

Case 1—A woman aged 34 was admitted in Christian Medical College Hospital, Vellore, complaining of difficulty in walking, weakness of the right arm and leg, marked loss of vision, diplopia, severe headache and vomiting. Her complaint of pain and weakness of right arm started one and half years ago. This progressed to weakness of right leg, diminished vision, headache and vomiting for the last three months. On examination she had bilateral papilledema of 2 to 3 diopters right homonomious hemianopsia with macular sparing, weakness of the right face, right arm and right leg, minimal aphasia, increased deep reflexes on the right side with upgoing plantar response on that side.

X-ray showed evidence of markedly increased intracranial pressure with absorption of the posterior clinoid processes. Ventriculogram and craniotomy revealed a papillary ependynoma. This had extended deep to the basal ganglion and complete removal was made impossible without producing complete aphasia. The progressive nature of the neurological deficit is quite evident and much time had been lost and permanent damage had been produced due to lack of earlier treatment.

Case 2—Male, aged 38 years, was admitted to the hospital complaining of convulsive attacks, headaches and blurring of vision.

Four years previous to admission, while he was in good health, he had, for the first time in his life, a convulsive seizure. In this attack as well as in his subsequent attacks he had first a feeling of being trans-

ferred to some other surrounding which seemed very familiar. Following this he became unconscious and had regular tonic and clonic convulsions. According to his friends his consciousness was definitely clouded after these attacks. The attacks had in the beginning occurred once every ten to fourteen days and subsequently had become less frequent, once in every 4 to 6 weeks. Six months after the onset of these attacks he started to get periodic attacks of headache which had increased of late in intensity and frequency. Two weeks prior to admission he started to get blurring of vision and occasional diplopia. Examination on admission revealed bilateral choked discs, a left lower facial weakness, a left homonomous upper quadrantic visual field defect and a left upgoing toe.

On the basis of those findings a diagnosis of a tumor involving the right temporal lobe was made. The patient was operated upon and an infiltrating glioma of this area was partially extirpated. After the operation X-ray treatment was given and he made a good recovery except for the visual field defect.

This case illustrates the fact that not only may generalised seizures be the only symptoms of intracranial neoplasm but also such attacks may be present for years before additional symptoms appear. It cannot be emphasized too much that every adult who, for the first time in his life, gets attacks of convulsions should be subjected to as complete an examination as our modern knowledge permits us to make. It is in such cases that we may hope to discover tumors at the earliest possible moment and give the benefits of early treatment.

Case 3—A school girl aged ten years, had suddenly, without any apparent cause, begun to have bouts of vomiting. These were not necessarily related to food and occurred most frequently in the early morning. The vomiting increased in frequency and severity, but was not associated with any other symptoms for about four months. It was then noted that she swayed a little as she walked and tended to fall. This difficulty progressed for another three more months at which time she began to complain of dimness of vision and diplopia.

On admission she was almost totally blind. She had an abnormally large head, bilateral papilledema, bilateral weakness of the internal rectus muscle, coarse nystagmus on either lateral gaze, a slight left facial weakness, generalized flaccidity of the extremities, coarse tremor of all extremities, marked incoordination of both lower extremities, staggering uncertain gait, bilateral upgoing toes.

A diagnosis of cerebellar tumor made and confirmed at operation, when a large cyst was evacuated and a small tumor nodule removed from its wall. Even though she made a good recovery, she is permanently blind. This particular type of tumor with very low malignancy could have been very successfully treated surgically if earlier diagnosis had been made.

Case 4—Woman, aged fifty two, was admitted in the hospital, complaining of gradually failing vision for ten years, and generalised weakness for three years. She first noticed that she could not see well with her left eye. After about two years she started to wear glasses. But the condition of the left eye grew steadily worse. After two more years she noted that the vision in the right eye was also failing and at the time of admission she could hardly find her way.

In addition it was elicited that at the age of thirty-two her menses had stopped and later on, two years prior to admission, her pubic and axilary hair had fallen out. The patient denied suffering from headaches.

On examination, vision was found to be greatly reduced. There was bilateral primary optic atrophy. There was generalised weakness and emaciation, and loss of pubic and axillary hair. The blood count showed microcytic anæmia with 9·5 grams of hæmoglobin; 3,340,000 erythrocytes; Wassermann reaction of blood and cerebrospinal fluid were negative and the basal metabolic rate was —28 per cent. Rœntgenograms of the skull revealed a markedly dilated sella turcica, the type seen with pituitary adenomas.

There was no doubt of the diagnosis of pituitary tumor, but the condition had advanced so far that there could not be any hope of improvement in her vision by any treatment. Even partial removal of the tumor and x-ray treatment was extremely hazardous because of her very poor general health.

This case emphasises the importance of early diagnosis. If brain tumor had been suspected early in the course of her disease, treatment could have prevented her blindness at a time when her general health would have been much better.

Case 5—A work man of 33 years was admitted to the Hospital, complaining of severe headache and occasional vomiting. The headaches had started six years ago, and occurred a month or so apart but gradually became more frequent. His eyes were tested several times and he had several changes of glasss. He was treated for sinus infection on two different occasions, and a diagnosis of migraine was made when he started to vomit, which was eighteen months before admission. The neurological examinations were completely negative. X-rays of the skull showed increased vascular markings in the right frontal region. A pneumoencephalogram was done which showed a superficial tumor probably meningeoma of the right frontal lobe. This was confirmed at operation. Since the diagnosis and treatment of this case was given before the establishment of definite neurological deficits, even though it took six years from the beginning of the symptoms of brain tumor, the patient was not crippled.

These five patients illustrate the need of early diagnosis of brain tumors. Certain symptoms should always arouse suspicion of an intracranial neoplasm. In brief, it should be borne in mind that all patients with progressively increasing neurological defects; those experiencing convulsive disorder, starting in adult life; those suffering from unexplained vomiting recurring headaches with increasing severity and frequency; or with gradually failing vision; should be suspected of having a brain tumor until complete investigation definitely rules out such a possibility.

TOXIC SUBSTANCE FORMED DURING MENSTRUATION (MENOTOXIN)

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An accidental observation made in the course of class experiments on nerve-muscle preparation, performed in hot weather in India, by a woman medical student and reported elsewhere, stimulated a study of the previous literature on the subject. An intensive search was made for any reports and experimental data indicating the presence of a toxic substance in sweat, uterine discharge, circulating blood and other secretions of the menstruating women.

Toxic substances in sweat of menstruating women—The earliest experimental work suggesting the formation of a toxic substance during menstruation is that of Schick (1920). He found that various cut flowers will wilt within 10 to 20 minutes after being handled by certain women during the first 2 days of catamenia. He was also the first to postulate the excretion of menotoxin because he found the discharge from napkins had this effect. Axillary sweat as well as systematic blood obtained during menstruation were more toxic to blossems than at other times and also retarded the growth of yeast. The effect, on animal tissues, of axillary sweat from menstruating women, was first recorded by Sieberg and Patschke (1923) who observed a slowing of frog's heart beat and an increase in tone of rabbit's intestine. Further evidence of a toxin in sweat of menstruating women was supplied by Polano and Diedl (1924). They found that after being kneaded by a menstruating woman, the growth of yeast may be retarded or accelerated. Macht and Lublin (1924) studying the effect on lupine seedlings, of adding to a nutrient solution, sweat, blood, milk, tears and urine of menstruating women, noted a significantly greater retardation as compared with controls. Growth of yeast was also retarded. The most interesting observation, almost identical with the one that led to the present search for literature was made by Lanczos (1930). He found that the preparation of a frog's gastrocnemius loses excitability when either the nerve or the muscle is held in the hand of a menstruating woman for 10 to 15 minutes. Bartelmez (1937) reviewing the above experiments wrote: "The only conclusion that appears justified is that the secretion of certain active substances by various cutaneous glands is increased during menstruation."

Toxic substances in menstrual discharge—Mention has already been made of the work of Schick (*loc. cit.*) recording the toxicity of discharge from napkins of menstruating women to flowers. Macht and Lublin (*loc. cit.*) offered no data regarding the effect of discharge on lupine seedlings. Bohmer (1927), using the same technique, reported toxic effects from discharge which however included vulval secretions. Dogliotti (1932) removed the discharge directly from the uterus and found no effect on frog's heart or neuromuscular preparations. Mandelstamm (1933) using lupine seedlings, as test, found no retardation from menstrual discharge removed from the uterus and very little from vulval discharge. Mommsen (1934) found that the menstrual discharge retarded growth of yeast. Flackner (1934) added menstrual discharge to the nutrient solution in which certain plants were growing and found that their development was retarded. None of these observations are definite and conclusive. Reviewing the position ten years ago, Bartelmez (*loc. cit.*) was tempted to write "There is little, if any evidence that the uterus discharges a toxin". Recently, however, Smith (1941) suggested that menstrual toxin, a bye-product of the change in the endometrium, which followed withdrawal of hormonal support, may be responsible for the local vascular phenomena which characterise menstruation. Smith and Smith (1945) quote the work of Mirsky and Freis (1944) showing that the tissue damage releases a proteolytic enzyme and that enzymatic action produces the toxic protein.

Toxin in circulating blood stream—The pioneering experiments of Schick (*loc. cit.*) demonstrated that systemic blood taken from menstruating women was toxic to blossoms. Macht and Lublin (*loc. cit.*) found a significant retardation of growth of lupine seedlings on adding blood from a menstruating woman to the nutrient solution. Meyran and Nothhaas (1929) noted that any blood serum has inhibitory effect on lupine seedlings and that the blood of only 4 out of 23 menstruating women showed significant retardation. Mandelstaam (1933) using the same test, found no evidence of menotoxin in the blood of 22 normal women. On the other hand, Macht and Davis (1934) adduced further evidence for a menotoxin by experimenting with animal tissues like N.M. preparations, vas deferens, intestines, as well as by noting the general activity of rats. Smith and Smith (1945.b) suggested that serum from the circulating blood of women during menstruation differed from that of normal pregnant women. They believe that a factor identical with menstrual toxin is present in circulating blood of menstruating women.

Toxin in other secretions—Frank (1921) confirmed the toxic action as far as milk is concerned, citing the prevalence of disturbances in suckling babies while the nurse is menstruating. Milk of menstruating women has been shown, by Macht and Lublin (*loc. cit.*) to retard the growth of lupine seedlings. Christiansen (1929) experimenting with yeast, noted that saliva from menstruating women always produced inhibition of fermentation. Macht and Lublin (*loc. cit.*) have also noted retarded growth of lupine seedlings after adding tears and urine of menstruating women to the nutrient solution.

The action of the toxin—Clinicians have supported the idea of a menotoxin because the symptoms in various pathologic conditions may be exacerbated during menstruation. Smith and Smith (1945.b) on the basis of their experiments, conclude that the menstrual toxin,

present both in the discharge and circulating blood, during menstruation, is pyrogenic, fibrinolytic and gives positive precipitin tests with serum of rabbits immunised against 'canine necrosin'. The pyrogenic action, they add, is apparently not due to foreign or non-specific protein reaction nor to the intravenous injection of a suspension. It occurs when filtered menstrual serum is given and has failed to occur with saline suspension of dried human placenta.

Nature of the toxin—Sieberg and Patschke (*loc. cit.*) were inclined to identify the active substance as choline. Polano and Dietl (*loc. cit.*) attribute the effects on yeast kneaded by menstruating woman to cyclic fluctuations in the traces of choline and creatinine excreted in the sweat from the finger tips. Klaus (1925) determined the choline content of sweat by platinic chloride method and found a very high content of choline, in the sweat of menstruating women compared to intermenstrual group. Choline, however, has no effect on cut flowers, nor is it a phytotoxin. Later, Klaus (1927) found no evidence of choline in the discharge itself. The odour of the discharge suggested trimethylamine. Tests for it were positive but not only during menstruation. Nearly half a century ago, Manchin (1902) reported variation in the quantity of trimethylamine in normal women. Klaus suggested that choline may be broken down to trimethylamine or similar substance during menstruation. Dilute solutions of trimethylamine cause loss of excitability of N.M. preparations.

In a recent report, Smith and Smith (1945.a) write, "Physical chemical biological similarities, cross precipitin tests and experiments on transferable immunity indicate that Menkin's so-called necrosin of pleural exudate and the toxin of menstrual discharge are identical . . ." The toxin is derived from tissue elements. The toxin is concentrated in euglobulin factor; it is probably a protein of large molecular size or is associated with such proteins. It is insoluble in physiological saline solutions. The toxicity is greatly diminished by heat, exposure to air and changes in pH.

It also hastens clotting and is distinct from fibrinolytic enzyme. Repeated injections into rabbits induce precipitin antibodies. Serum of rabbits immunised with menstrual discharge prolongs the survival of immature rats given a lethal dose of menstrual discharge. The protective factor responsible for this action is concentrated in pseudoglobulin. It is found in association with the toxin in the circulating blood.

Origin of the toxin—Smith's view that the toxin is a bye-product of the change in endometrium following withdrawal of hormones has already been quoted. Mirskey (1944) concluded that tissue damage releases a proteolytic enzyme and that the enzymatic action yields the toxin protein. If the toxin is chiefly derived from the uterine mucous membrane as the workers indicate, then, there should be a greater concentration of the toxin in the discharge than in circulating blood or secretions. Some of the experiments quoted failed to demonstrate any effect of menstrual discharge on lupine seedlings or animal tissues.

The other sources and possibilities of the toxin remain to be explored. The complex changes that occur in the endocrines during menstruation are still unknown. The metabolism of œstrogens and progesterone and their bye-products in tissues and blood are yet to be studied . . . Apart from the endocrines, the metabolism of proteins and fats are also likely to be altered or disturbed during menstruation. We are yet far from knowing how complex these changes are. The increasing use of radioactive isotopes may clear up some of these mysteries.

These experiments and observations appearing in European and American journals are considered as the latest developments and recent advances in physiology of menstruation. The ancient Indian literature, religious and medical, prescribed a code of conduct to be observed by the menstruating women as well as by her family for 4-7 days. Even today, tradition and custom insist on complete rest, non-participation in all domestic work and prohibits contact with others. The detailed ritual is too long to be incorporated in this scientific article and will be the subject of a medico-historical study. Whether one agrees with the socio-religious explanations underlying these restrictions or not, no one can deny that these practices are based on knowledge and experience and also indicate acute powers of observation and intelligent inference. In spite of plain living and simple methodology, the Ancient Indians had a glimpse of the Truth.

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ANAL FISSURE—ITS TREATMENT

(A Study of 20 Cases)

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Anal fissure is one of the commonest minor ano-rectal lesions that one meets in his daily surgery, both in hospital and in private practice. It is a very painful condition and the patient who comes with this is in much agony.

Fissure in-ano is usually single and traumatic in origin. Overdistension of anal canal in the act of passing a large hard faecal scybala is the usual cause of tearing the anal mucous membrane, usually posteriorly in the midline. The reason probably is that the anal canal has weak muscular support of external sphincter posteriorly, owing to the divergence of the muscle fibres which arise from the tip and the sides of the coccyx. The tearing down of an anal valve, which Sir Charles Ball considered as the cause of anal fissure is an occasional explanation.

Pathology

In the early stages a fissure is a linear tear in the mucous membrane only, as it becomes chronic it becomes deeper, the margins get indurated and hard and a characteristic sentinel tag forms at its lower end, which is a raised indurated skin tag due to oedema and results from a combination of infection, lymph stasis, surface irritation and a squeezing up effect produced by a tight sphincter. Infection sometimes leads to the formation of a submucous abscess which may burst inside the anal canal, or occasionally outside resulting in a short dorsal fistula.

Sphincter muscles undergo important changes. First there is a spasm of external sphincter, occasionally of internal as well. Gradually as the condition persists a fibrous infiltration of the contracted muscles takes place. The external sphincter in these cases feels on rectal examination like a hard umbrella ring.

As has been said above a fissure is commonest posteriorly. Goodsall described anterior fissure in men in only 1 per cent cases and in females about 8 per cent. In my present series of 20 cases who were all males not a single case of anterior fissure has been recorded.

Symptoms

Pain is the commonest symptom. It is acute, agonising and characteristic. Patient complains that he gets pain beginning with the act of defaecation and lasts from half an hour to sometimes four to six hours after. It is of a cutting and burning nature. When a submucous abscess develops it becomes of a throbbing type. In chronic cases pain becomes less.

Bleeding, a few drops of blood or occasionally a streak may be noticed by many patients, on the stool.

Irritation is often set up by the serous discharge from the fissure causing occasionally anal excoriation and pruritis.

Constipation, is invariably present. To start with it is an important ætiological cause of fissure but later on it becomes the commonest sequel.

Treatment

It differs according to the stage of the fissure. Acute cases heal very well on palliative treatment only while in chronic cases some form of operative interference becomes inevitable.

In the present series of cases as seen in the table given below, 12 were acute superficial, 6 were chronic with a sentinel tag and 2 were chronic with a submucous abscess. The acute superficial cases were put on palliative treatment, to be described in detail later, and the cases in other two groups were subjected to operative treatment. All did very well. The usual healing period ranged between 2 to 6 weeks.

Table I—Showing Types of Cases

Type of lesion	*Number*
Acute superficial ..	.. 12
Chronic with a sentinel tag ..	.. 6
Chronic with a submucous abscess	.. 2
Total	.. 20

Palliative treatment—Every case of acute anal fissure must be put on palliative treatment first, and my observations go to show that cent per cent heal in about two weeks' time.

A fissure which shows signs of chronicity, like induration of margins, presence of a sentinel tag, presence of a submucous abscess or a dorsal fistula, is unfit for any treatment other than operative.

Palliative treatment adopted in this series of cases was, a nightly dose of petrolagar or liquid paraffin, to keep the morning stool soft, insertion of an analgesic ointment—1 per cent percain ointment (Ciba) twice a day (this was done by the patient himself) to allay the local pain, and injection of a long lasting local anæsthetic in the external sphincter muscle to relieve the spasm and thus afford rest to the fissure and help healing, and local applications to the raw area with pure carbolic or ichthyol.

Method of injecting the sphincter and post-lateral anal area—I have been using Proctocaine (Allen and Handbury's), which is an oily solution and its effect

TABLE 2—SHOWING THE RECORD OF 20 CASES OF ANAL FISSURE TREATED

Serial No.	Age	Sex	Clinical findings	Treatment adopted	Number of days to get cured
1	30	Male	Posterior fissure, acute, history of six days.	Palliative	15 days
2	28	"	Posterior fissure, acute, history of 2 days.	"	13 days
3	33	"	Dorsal fissure, acute, 10 days' history.	"	18 days
4	36	"	Dorsal fissure, acute, 7 days' history.	"	16 days
5	14	"	Posterior fissure, one month history, submucous abscess present.	Operative	4 weeks
6	40	"	Posterior fissure, acute, 5 days' history.	Palliative	2 weeks
7	29	"	Posterior fissure, history of 10 days.	Palliative	10 days
8	36	"	Posterior fissure, history of 2 days.	"	12 days
9	42	"	Posterior fissure, 2 months' history, sentinel tag present.	Operative	25 days
10	24	"	Posterior fissure, 1 month's history, sentinel tag present.	"	21 days
11	28	"	Posterior fissure, 1 month's history, submucous abscess present.	"	6 weeks
12	29	"	Posterior fissure, history of one week.	Palliative	3 weeks
13	50	"	Posterior fissure, 1 month's history, sentinel tag present.	Operative	5 weeks
14	25	"	Posterior fissure with sentinel tag, history of 2 months.	"	6 weeks
15	34	"	Posterior fissure with sentinel tag, history of 1 month.	"	4 weeks
16	42	"	Posterior fissure, 4 days' history.	Palliative	18 days
17	27	"	Posterior fissure, one week's history.	"	"
18	33	"	Posterior fissure with a sentinel tag, 1 month's history.	Operative	3 weeks
19	24	"	Posterior fissure, acute, 3 days' history.	Palliative	12 days
20	25	"	Posterior fissure, acute, 6 days' history.	"	16 days

lasts for many days often weeks. A 10 c.c. syringe is charged with 10 c.c. of the anæsthetic solution, the needle is entered one inch behind the anus in the midline, first subcutaneously and then turned first to one side and passed deeply into the sphincter and a little less than 5 c.c. is injected, then the needle is withdrawn and its direction changed to the opposite side and the same amount injected deeply into the sphincter in that quadrant. Left index finger is always passed in the anal canal before the injection is started. Remaining 1 c.c. of the solution is injected directly under the base of the fissure.

Operative Treatment—Chronicity of a fissure is an indication for some form of operative treatment.

A fissure which is palpable to the examining finger, whose margins are indurated, or which has formed a sentinel tag, or the presence of a submucous abscess, are all indications of chronicity and denote a total unsuitability for palliative treatment. Some form of operative interference is inevitable in all such cases.

The type of operation which I have done in my series of cases reported in this paper is a fairly simple one, and much the same as described by Gabriel. Except in one case, Case No. 5, who was a boy of 14 years and could not be reconciled to a local anæsthesia, all were performed under local novocaine infiltration. 10 to 20 c.c. of 1 per cent novocaine or procaine is infiltrated into the anal sphincters on both sides posterolaterally exactly in the same way as the oily solution in the palliative treatment described before. This procedure ensures a good relaxation of the sphincter muscles, which is so very helpful in the performance of subsequent stages of operation. 1 to 2 c.c. of 2 per cent novocaine is infiltrated under the skin round the fissure and in its base. Two incisions each about an inch long are made, one on each side of the fissure in a divergent form—the apex at the anal margin and the base outwards. The outer ends of these incisions are joined by a straight skin cut thus mapping out a triangular flap which is raised and dissected out towards the apex (anal margin) incorporating the entire fissure in it. The sentinel tag also is snipped with it. Now at the base of the raw area the fibres of the subcutaneous external sphincter are divided at right angles—transversely—so that it is temporarily thrown out of action and the ulcer gets rest to heal.

This operation leaves a clean healthy wound well draining on the surface and completely healing in three to four weeks time usually.

SUMMARY

1. A brief description of pathology of anal fissure has been given.

2. Palliative and operative treatments of fissure have been described, an acute fissure is completely curable on palliative treatment only. For a chronic fissure some form of operative treatment will have to be needed.

3. Treatment of 20 cases has been recorded.

SOMATIC PARANOIA*

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We are familiar with somatic disorders in hysteria and understand their mechanism quite well but there exists a certain type of paranoia in which delusions of purely somatic nature are manifested and their resemblance to hysteria is so close that at times it becomes difficult to distinguish one from the other. Of course delusions of purely hypochondriac nature have been described by workers in patients in whom typical paranoid delusion, *viz.*, delusion of persecution and grandeur are also present. But I am now going to describe a group of cases in which no other delusions except the somatic ones were observed and think that they form a distinct clinical group hitherto not described by any other worker.

Jung had mentioned about the existence of somatic delusions in schizophrenia in his 'psychology of dementia praecox.' A schizophrenic patient's assertion to the effect that his hands were made of glass or his intestines and lungs did not exist or badly damaged is frequently met with. And I am sure that every psychiatrist would acknowledge the existence of such delusions in his schizophrenic cases in spite of the fact that such bodily delusions are more frequently met with in dull apathetic and non-communicative patients. But somatic delusions of paranoic variety are very rare and during my ten years of psychiatric practice I have come across only a dozen cases. Dr. Bose first pointed out to me about the existence of this type of paranoia and since then I got myself engaged in studying this type of cases.

The first case of somatic paranoia I came across was a medical student appearing for his final examination. He believed that hairs of his head were living snakes and as he was afraid of their biting other people he kept his head always bandaged. We have heard about gorgons in Greek mythology whose hairs were supposed to be living snakes but that this very idea could be adopted by a paranoiac to form a delusion might appear surprising to many people. But to the patient in question the idea was very natural and he could not be made to understand the absurdity of his belief inspite of his reasoning power otherwise remaining intact. How and when he developed his idea was not known but as he suddenly started keeping his head bandaged the attention of other people was drawn towards him. He kept his delusion a closed secret but one day in a fit of anger while pestered by his friends to explain his queer behaviour he divulged his delusion. The most important fact in this case was that the intellect of the patient at no time became clouded and he did not develop any other delusion in his mental sphere. The only defect that appeared gradually in personality was his withdrawal from the society of his friends as the delusion in question prevented him from mixing freely with others.

Another patient aged about 35 years believed that he had a big ulcer on the top of his head though in reality he had none. He had no other delusion at that time but was very much anxiety-stricken. His brother told me that he used to worry regarding his digestive function for a pretty long time. He often complained that gas was being formed in his stomach and it would go up into his head and get accumulated over there causing him severe headache. In course of time this fussing about digestive trouble and gases being accumulated in the head disappeared but in its wake a new idea of having an ulcer on the top of the head appeared which made him more miserable. In this case also no delusion in mental sphere was noticed. And in spite of his somatic delusion his personality appeared to be intact and the anxiety that he manifested would have been natural if he really had an ulcer on his head. He was still then, carrying on his business quite successfully.

Next case was a man of 45 years. His chief complaints centred round his head. At times he would complain he had no head and to relieve his anxiety he would have to see his face in the mirror frequently but surprisingly enough on other occasions he would experience a severe sense of pressure inside his head. Sometimes again his head appeared to him as empty as if there was nothing inside his skull. But later on he experienced a feeling that his brain had become disintregated and dropped down into his neck. When he came to me this feeling was causing him severe mental agony and he started believing that his brain got disintegrated due to syphilitic infection. How he learnt to associate this feeling of disintegration inside his head with syphilis is not known but he developed a firm belief that he had been suffering from general paralysis of the insane. He got his blood repeatedly examined to prove that he had actually been suffering from syphilitic infection but the results of the examinations were invariably negative.

This patient was a musician and used to blow a pipe instrument. One day while he was blowing his musical instrument he experienced a feeling of congestion inside his head and felt as if it would burst since then he became preoccupied with his head and gave up playing the musical instrument. At this stage he developed a strong delusion of persecution and refused to eat for some days as food appeared to him poisonous and a gentleman for whom he had great respect appeared to him hostile. But this delusions quickly disappeared from the psychic plane but took a firm root in his body.

I remember another case which resembled hysteria to a great extent. The patient was a girl of 16 years and developed paresis of her left side after she was removed from her boarding school by her father due to economic difficulty. The girl was very anxious to continue her study and when she realised that her education had been stopped for good she became extremely gloomy and felt a severe pain in her precordial region and that pain irradiated to her left arm making it impossible to move. During her next monthly period which appeared soon after this incident

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she got severe pain in the left side of her lower abdomen, that pain too irradiated to her left leg causing its movement impossible. Since then she developed the idea that she had got one-sided paralysis.

Beside this symptoms she showed vague persecutory ideas. She would refrain from eating as she believed food produced burning sensation in her stomach. This patient's mental make up was paranoid. She could not develop confidence in any of the doctors who treated her and stubbornly refused to take medicines prescribed by them as she thought them to be harmful. A hysterical patient with similar symptom quickly develops rapport with the physician and tries to follow the doctor's advice but this patient did not show any such tendency. Psychotherapy which was attempted in this case failed due to want of co-operation from her. She created such a barrier arround her by her negative attitude that all therapeutic methods failed. This patient's intellect was clear and she showed no symptoms of schizophrenia.

Patients with somatic delusions are very bad cases. So far as the therapeutic results are concerned they do not respond to treatment well. I have administered electric and insulin shocks to some of these cases with no good results. One case with single bodily delusion had undergone psychoanalytical treatment also but showed no improvement even after several hundred sessions.

Regarding the ætiology of somatic paranoia very little is known. Perhaps every case of somatic paranoia originally shows some psychic delusions as noticed in one of my cases and later on gets converted into bodily ones. And the mechanism by which a psychic delusion can get converted into a bodily one must be like that of hysteria.

SOME ASPECTS OF VITAMIN B_2 COMPLEX AND ITS DEFICIENCY IN MAN

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Introduction

A short introduction has been made at the outset to justify my using the term vitamin B_2 complex, a term which may not be liked by everybody. The reasons for using such a term may be summarized as follows:—

(1) As Sydenstricker (1942) suggests "we are still ignorant of the influence of lack of one vitamin on the physiologic functions of others and of the synergistic activity of the entire group of essential nutritive substances. It is probable that certain chain reactions requiring the biochemical functions of many vitamins are of prime importance in normal metabolic processes", a hypothesis which applies more particularly to different members of vitamin B_2 complex.

(2) Too much is often thought and spoken of in terms of isolated vitamin deficiency but careful examination in most of the cases will reveal deficiency of other nutritive materials as well and this is particularly so with different factors of vitamin B_2 complex.

(3) Leitner (1948a) has emphasized that subclinical latent deficiencies within the vitamin B group may often become manifest after energetic treatment of the obvious deficiency. He subsequently suggests that large doses of one purified vitamin, *i.e.*, one single enzyme system may easily upset the balance in deficiency states or may exert an inhibitory effect on other enzyme groups which at that particular time are present in abnormally low amount. The well balanced multiple enzyme systems present in potent liver extracts may restore the disturbed equilibrium without containing large doses of any one of the known purified vitamins.

(4) A number of clinical syndromes, *e.g.*, burning feet syndrome, have been observed, which in all probability seems to be due to deficiency of one or more factors of vitamin B_2 complex, but we are still unable to attribute which particular factor for factors are concerned in production of these syndromes.

(5) A patient with manifestation of deficiency of a single factor of vitamin B_2 complex shows better therapeutic results when the whole vitamin B_2 complex is administered than when the single deficit factor is given. It has been recorded by Sydenstricker (*loc. cit.*) and many others that symptoms of thiamin and riboflavine deficiency becomes more marked in pellagrins after nicotinic acid treatment. Leitner (1948b) has given particular stress that large doses of parenterally given pure vitamins, specially those of B group, may provoke a serious imbalance and even if there is deficiency of the administered vitamin they sometimes cause more harm than good.

(6) Vitamin B_1 deficiency syndromes, *e.g.*, beriberi, polyneuritis, Wernicke's encephalopathy, etc. are better understood clinical entities and its relation to members of vitamin B_2 complex may not be so intimate as is present between different members of vitamin B_2 complex. So I am using the term vitamin B_2 complex instead of vitamin B complex.

Ætiology of Deficiency

The deficiency may be brought about in the following ways:—

(1) *Insufficient intake of vitamins*—This dietary inadequacy produces what is known as primary deficiency, while the rest of the causes mentioned later produces the secondary or conditioned deficiency. This primary deficiency may be due to:—

(*a*) Restricted diet prescribed in treatment of various diseases, such as peptic ulcer, Bright's disease, obesity, allergy, colitis, etc.

(*b*) Persistent anorexia, nausea or vomiting which may be due to gastrointestinal disorders like chronic gastritis, due to psychiatric disorders, such as anorexia nervosa or due to certain toxæmias as commonly associated with pregnancy.

(*c*) Scarcity of food as found amongst the famine stricken people and war prisoners.

(2) *Insufficient absorption from the intestine*—(*a*) Chronic diarrhœas and dysenteries including ulcerative colitis, Crohn's disease, tubercular enteritis, worms, gastro-intestinal resections, short circuits in the intestines, etc.

(*b*) Sprue syndrome.

(*c*) Obstructive lesions in intestine.

(*d*) Insufficiency of gastrointestinal secretion, *e.g.*, achlorhydria.

(*e*) Defective biosynthesis or increased biodestruction.

Biosynthesis and biodestruction are two physiological processes continuously going on inside the alimentary tract which are responsible for synthesis or destruction of some of the vitamins. For the normal biosynthesis to occur there must be proper activity of the natural bacterial flora. Anything which alters the natural bacterial flora or the activity of the organisms for a prolonged period may lead ultimately to vitamin deficiency. Sulphaguanidine and other medicines may cause deficiency of riboflavine, nicotinic acid and other vitamins in this way.

3. *Defective storage of the vitamin absorbed* possibly in liver diseases. This is only a predisposing cause, and there must be some other factor to precipitate the deficiency syndrome.

4. *Impaired utilization of the vitamin*—The evidence of this is mainly circumstantial, as direct experimental verification is extremely rare. Certain changes take place with the vitamin in the process of utilization. To site one example is conversion of nicotinic acid to co-enzyme I and II. These changes may occur in differet tissues, but at present most evidence points to the liver as being the main organ for these processes. In the case of liver dysfunction, not only the conversion but also the storage and release of these substances are interfered with. Utilization of the vitamin may be impaired in (1) Hepatic dysfunction, *e.g.*, liver cirrhosis, chronic hepatitis and alcoholism (2) Probably other diseases.

5. *Increased excretion of the vitamin* as in polyuria, lactation, excessive perspiration, diarrhœa, paracentasis, proteinuria, etc.

6. *Increased requirements for the vitamin* as in rapid growth, pregnancy and lactation, febrile conditions, hyperthyroidism or any other cause which increases the basal metabolic rate.

Very often more than one aetiological factor may be found in a case of vitamin deficiency. Thus in alcoholism the intake is insufficient, absorption is impaired and probably the storage and utilization are defective. Similarly in pregnancy, the intake and absorption are impaired, while the requirement and excretion are higher than normal.

Toxamins and anti-vitamins—Lastly a reference might be made to toxamins and anti-vitamins regarding the aetiology of vitamin deficiency. The term toxamin might well be applied to all substances antagonistic to the action of vitamins, while the term anti-vitamin might be reserved to describe those structural analogues which acted by displacing the vitamin from active surfaces. The sulphonamide drugs were thus typical antivitamins since they act as shown by Woods and Fildes (1940) by competing with P-aminobenzoic acid. The natural toxamins in relation to vitamin B_2 complex are: (1) a factor in maize which antagonizes nicotinic acid and (2) avidin in raw egg-white which antagonizes biotin.

Different Constituents of Vitabin B_2 Complex

A number of factors have been identified and are being identified to be present in the vitamin B_2 complex. Some of the better recognised are:

(1) *Riboflavine*—In the tissues it is combined with phosphoric acid and a specific protein to form the Warburg's yellow enzyme or flavoprotein. This enzyme is concerned in chemical reactions involved in cell respiration. Its deficiency produces a clinical condition known as hypo-riboflavinosis or ariboflavinosis which is characterised by angular stomatitis, cheilosis, smooth magenta coloured tongue, angular conjunctivitis and corneal vascularisation, mild superficial desquamation at the region of naso-labial folds and probably scrotal dermatitis.

(2) *Nicotinic Acid*—Nicotinamide is a constituent of dinucleotide coenzyme concerned in transfer of hydrogen in tissue respiration and of phosphorus in carbohydrate metbolism. It is also concerned with porphyrin metabolism as is shown by a decrease of porphyrin in the urine of pellagrins following nicotinic acid treatment. It has been established that nicotinic acid constitutes at least part of pallagra-preventing factor of Goldberger but whether this is the sole factor or one of the factors concerned, we yet do not know. Many of the manifestations of pellagra such as dermatitis, glossitis, diarrhœa,etc. are probably due to lack of this vitamin.

Owing to its vasodilator action, nicotinic acid has been used by various observers in a number of diseases, such as angina pectoris, Meniere's disease, migraine, bronchial asthma, etc. and sometimes with promising results.

Finally a syndrome of acute nicotinic acid deficiency encephalopathy has been described. It is characterised by clouding of consciousness, cogwheel rigidity, marked sucking and grasping reflexes with or without nystagmus or ophthalmoplegia and it shows marked response with nicotinic acid treatment.

(3) *Folic Acid*—It is a compound of petridine and glutamic acid. In man, so far no case of natural folic deficiency has been described. Folic acid has been found to cause an improvement in the bood picture in cases of macrocytic anæmia with some degree of megaloblastic change in the bone marrow. Consequently the following anæmias respond to folic acid:—

(*a*) Pernicious anæmia.

(*b*) Macrocytic megaloblastic anæmias of pregnancy, infancy, pellagra, sprue syndrome.

(*c*) Nutritional macrocytic anæmias.

(*d*) Possibly achrestic anæmia.

Folic acid does not cause any improvement in the blood picture when there is no megaloblastic change in the bone marrow.

Folic acid is not by itself the specific hæmopoietic factor, but probably it plays a part in production of that factor. Folic acid is of no value in preventing the onset or progression of neurological complications of pernicious anæmia.

Adermin or Pyridoxine—It is a pyridine derivative. Its exact role in human nutrition is not well established. This vitamin is chiefly concerned with utilisation of unsaturated fatty acids. Its administration to pellagroids previously treated with nicotinic acid and riboflavine shows some additional improvement. The clinical application of adermin in various diseases like myopathies and myelopathies, Parkinsonism, toxæmias of pregnancy, etc. has yielded mostly disappointing results.

(5) *Pantothenic Acid*—Its role in human nutrition is not yet well defined. It seems to be an essential factor in human nutrition, probably being associated in function with riboflavine. 'Burning feet syndrome' may be chiefly due to deficiency of this factor.

(6) *Choline*—It is essential for metabolism of natural fat and cholesterol. It has a lipotropic action and helps the liver in the transport and utilization of fatty acids. It protects liver against injury by toxins and poisons and it is probably concerned in the pathogenesis of fatty liver and cirrhosis of liver.

(7) *Para-aminobenzoic acid*—As with so many factors, the exact role played by this vitamin in human nutrition is yet not well-defined.

This substance has been found to have an inhibitory effect on the activity of suphonamides. Woods and fildes (*loc. cit.*) suggested that para-aminobenzoic acid is an essential metabolite for some bacteria, and that sulphonamides exert their action by competing with p-aminobenzoic acid for enzymes where activity is necessary for normal growth of organisms. When sulphonamides win the competition, the enzyme is blocked and the activity of the organism is retarded.

Seive (1941) found para-aminobenzoic acid to produce black hair in cases of human achromotrichia.

The most recent and most promising is its use in the treatment of rickettsial diseases. Encouraging results have been reported by the American typhus commission in Cairo in the trail of p-aminobenzoic acid in typhus fever. The drug was given by mouth in a dose of 4 to 8 gms. and continued in doses of 2 gms. two-hourly until a total of 70 to 200 gms. had been given. Provided administration of the drug in begun early, it appears to reduce the severity, duration and mortality rate of the disease.

(8) *Biotin*—It is a compound of urea. It is inactivated within the body by avidin of raw egg-white and hence the name anti-egg-white vitamin. Human volunteers on deficiency of this vitamin were found to develop some skin changes, such as fine scaling and greyish discolour and other manifestations were like those of vitamin B_1 deficiency.

(9) *Inositol*—It is a lipotropic constituent of vitamin B_2 complex and may be concerned in pathogenesis of some forms of fatty liver. As suggested by some workers, it may have some function in maintaining the normal gastro-intestinal function.

(10) *Vitamin B_{12}*—It has been shown by Lester Smith and Rickes and his co-workers to be a cobalt co-ordination compex. When given to patients with pernicious anæmia in minute doses of 3 to 6 micrograms, it produces a prompt improvement in the blood picture and in the general condition of the patient. Good results also have been observed by some workers with this vitamin in cases of nutritional macrocytic anæmia and in cases of tropical and non-tropical sprue. The neurological complications of pernicious anæmia were improved with this vitamin by Ungley (1948). This has been confirmed by Castle, Denny-Brown and their colleagues at Harvard. Spies and his co-workers have recently reported that glossitis, stomatitis and other mucous membrane lesions complicating pernicious anæmia are relieved within 24 to 48 hours treatment with vitamin$_{12}$. Owing to the very limited amount of the material available—4 tons of liver yielding only one gramme of the substance—the number of patients treated so far with this vitamin is small. But it seems as if the anti-pernicious anæmia factor of liver has been discovered after a 20 years search.

Manifestations of Vitamin B_2 Complex Deficiency

(1) Muco-cutaneous System

(*a*) *Angular stomatitis* (perleche)—maceration and fissures at the angles of the mouth. This is one of the earliest manifestations of vitamin B_2 complex deficiency.

(*b*) *Cheilosis*—lips being red, denuded, shiny or pale, cracked and crusted with transverse markings.

(*c*) *Tongue changes*—The tongue may become smooth and tender and of typical magenta colour. Or there may be œdema of the tongue as evidenced by dental indentations along the margins. Early there is redness and hypertrophy of the lingual papillæ, followed later by multiple fissuring and papillary atrophy. Desquamation of the superficial layer causes a scarlet-red dry smooth beefy tongue which is often hyperæsthetic and painful. Secondly infections particularly with Vincent's organisms may produce white coatings on it.

(*d*) *Buccal mucous membrane, palate and gum* may show redness, œdema and denudation of the epithelium.

(*e*) *Pellagroid skin lesion* which starts as an erythema, gradually progresses to a deeper dermatitis with desquamation and exfoliation and finally pigmentation and atrophy supervenes, the skin becoming wrinkled, inelastic and thinned. These skin rashes develop over those areas which are directly exposed to sun's rays or friction. Pathognomonic features of these lesions are their absolute symmetry and their sharply demarcated pigmented borders, the hyperkeratotic borders of Mark.

(*f*) *Dyssebacia*—Seborrheic changes of the alæ nasi, canthi, pinnæ and other folds of the body as evidenced by a slight erythema frequently covered by small greasy flaky accumulations.

(*g*) *Vaginitis, urethritis and proctitis* in later stages.

(*h*) *Probably scrotal dermatitis.*

(2) ALIMENTARY SYSTEM

(*a*) All sorts of symptoms like anorexia, nausea, vomiting, abdomoinal discomfort and pain, flatulence, distension, constipation, diarrhœa, etc. may be present, the most common of them being chronic indigestion, abdominal discomfort and diarrhœa.

(*b*) *Achlorhydria*—which may be histamine-fast.

(3) NERVOUS SYSTEM

(*a*) Various symptoms like *irritability, depression, insomnia, headache, emotional instability, failure of memory, lack of concentration, parasthesia of the extremities, tremor of the limbs and head* etc.

(*b*) *Paralysis of the extremities* which is more often spastic than atonic, and in rare cases the picture is that of sub-acute combined degeneration of the postero-lateral columns of the spinal cord.

(*c*) Finally it may terminate to *insanity.*

(4) SPECIAL SENSES

(*a*) *Retrobulbar neuritis.*

(*b*) *Nerve deafness.*

(*c*) *Disturbance of other sensory functions of the body.*

(5) EYE CHANGES

(1) *Circumcorneal injection.*

(2) Later on *corneal vascularization and superficial forms of keratitis* which may ultimately result in corneal ulcers and opacities.

(3) *Angular conjunctivitis.*

(4) *Retrobulbar neuritis* and probably iritis as well.

These eye lesions may produce itching, burning, redness, blepharospasm, lacrymation, dimness in the acuity of vision, twilight blindness etc.

(6) GENERAL MANIFESTATIONS

(1) Gradual emaciation and loss of body weight.

(2) General weakness and loss of strength.

(3) Lack of energy and loss of initiative and enterprise. Later on, various nervous manifestations and emotional instability.

(4) Retardation of growth in children.

(5) Pallor and anæmia.

RELATION OF VITAMIN B_2 COMPLEX DEFICIENCY WITH OTHER DISEASES

1. *Pellagra, sprue syndrome, pernicious anæmia* and *tropical nutritional anæmia*—The deficiency of vitamin B_2 complex may be associated with these diseases, but whether the deficiency is the cause or an effect or merely coincidental with those diseases—we still do not know. But whatever cause it may be, there may be deficiency of one or more factors of vitamin B_2 complex in these diseases the predominant symptoms of which will depend on the particular component or components deficient.

When it was first shown that folic acid which occurs in liver, restores the blood to normal in pernicious anæmia, it was at first suggested that this might be the long-sought anti-pernicious anæmia factor of liver. This view could no longer be held when it was shown that folic acid, unlike active liver extracts, failed to prevent the onset and progression of neurological complications of pernicious anæmia. Indeed some workers even claimed that it appeared to precipitate them in certain patients.

It is clear that folic acid has definite limitations and alone is not a safe treatment for pernicious anæmia, owing to the very great risk of neurological changes persisting or appearing for the first time in the course of treatment. In the other macrocytic anæmias, however, folic acid may be used with advantage since neurological symptoms almost do not occur. The treatment of pernicious anæmia with folic acid is likely to be revolutionized when much more is known of vitamin B_{12}.

In the sprue syndrome (sprue, cœliac disease and steatorrhœa) the response with folic acid vary according to the type of marrow activity. With a megaloblastic marrow, the response is good for a time, but these patients tend to relapse. Less satisfactory results are obtained when the marrow is normoblastic, and although these patients do not respond hæmatologically, they may show some improvement in their intestinal functions. This led Davidson and Girdwood (1946) to suggest that folic acid has two functions:—

(*a*) To maintain the normoblastic marrow action.

(*b*) To control the behaviour of alimentary tract.

(2) *Deficiency Scrotal Dermatitis*—Recently Frankland (1948) described the syndrome as he noted it to be occurring among prisoners of war in Far East. It develops in persons living on a grossly deficient diet and particularly deficient in vitamin B_2 complex. Probably riboflavine deficiency is mainly concerned for development of this syndrome.

(3) *Burning Feet Syndrome*—This syndrome was recently described separately by Cruickshank (1946) and Page (1946). They observed a large number of cases of this syndrome to be occurring among prisoners of war in Far East. Deficiency of one or more factors of vitamin B_2 complex known or unknown is probably responsible for this. As Cruickshank (*loc. cit.*) suggests—the deficiency of nicotinic acid, perhaps in conjunction with riboflavine deficiency is a major factor in development of this. This syndrome has also been recently investigated by Gopalan (1946) of Madras, and there is evidence to suggest that burning feet syndrome is due to lack of pantothenic acid.

(4) *Fatty and other changes in the liver*—Fatty changes in the liver is one of the earliest manifestations of starvation. Deficiency of some factors of vitamin B_2 complex like choline, inositol, etc. may to some extent be responsible for this. Liver damage has been produced in experimental animals by a variety of dietary deficiencies and particularly choline, and amino-acid methionine. It is possible that long continued deficiency of such substances may be a factor in the development of various liver changes including cirrhosis of liver.

TREATMENT

The treatment should be directed along the following lines:—

(1) It should be commenced as early as possible since it is likely that if deficiency state is allowed to continue for a prolonged period, irreversible changes may take place in the tissues and may not respond well with subsequent therapy.

(2) Whenever there is deficiency of any factor of vitamin B_2 complex, the whole complex should be given in sufficient quantities along with a full adequate, well balanced, high protein diet, supplying thereby other vitamins and nutritive materials. In this connection it may be mentioned that crude liver extract and yeast are particularly rich sources of vitamin B_2 complex and the more crude the liver extract, the richer it is in its vitamin contents. It is probable that potent liver extract and Brewer's yeast are so effective not because they contain a large quantity of these vitamins, but because they contain them in a balanced proportion. Further, they may contain some factors of which we do not know or know very little at the present stage of our knowledge.

(3) Special attention should be laid to administer in high doses the particular factor whose deficiency is predominant.

(4) When a restricted diet is prescribed as in the treatment of some diseases like peptic ulcer, care should be taken to note that its prolonged use does not lead to vitamin deficiency. If necessary, the diet should be supplemented with the vitamins.

(5) Effective treatment of the cause of deficiency.

(6) The elimination of the co-existing conditions when present, causing excessive requirement of the vitamin.

(7) When there is deficient absorption from the intestine or possible deficient storage or metabolism in the body, they should be administered by parenteral methods. In other cases the parenteral administration of vitamins should be restricted to emergencies.

(8) Symptomatic treatment along with the specific treatment until the symptoms are completely relieved.

(9) When large doses of one or more vitamins are continued for a long time, care should be taken to note the appearance of any toxic manifestations.*

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*Read at a clinical meeting of the Sitarampur Branch of the Indian Medical Association.

SPECIAL ARTICLES

I

INFECTIOUS DISEASES AND THE INFECTIOUS DISEASES HOSPITALS IN INDIA

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In the past, used in a restricted sense, the term "Infectious disease" was applied to diseases indirectly and obscurely transmitted from host to host. The modern conception of an infectious disease is 'infection of the tissues of an animal by a living organism.' Because the invading organism may be, in many instances, transferred from individual to individual of the host species, these diseases are now perhaps more aptly termed 'Communicable diseases.' Contagious diseases are only those communicable diseases, which are transmitted exclusively or nearly so directly from host to host, *i.e.*, by contagion.

The living organisms, which cause infectious diseases, are from a biological standpoint extremely varied. Included in the list are:—

1. The viruses.
2. The unicellular vegetable forms, *i.e.*, the 'bacteria.'
3. The multicellular vegetable forms, *i.e.*, the fungi.
4. The unicelluler animal forms, *i.e.*, the protozoa.
5. The multicelluler animal forms, *i.e.*, the helminths and the arthropods.

Among the diseases most prevalent in India may be mentioned the following:—

1. *Contagious, i.e.*, diseases always transmitted by contact, *e.g.*, syphilis, gonorrhœa, other venereal infections.

2. *Communicable.*

(*a*) Diseases generally transmitted by contact:
Small-pox.
Chicken-pox.
Measles.
Mumps.
Septic Sorethroat.
Influenza.
Whooping cough.
Diphtheria.
Cerebrospinal Meningitis.
Encephalitis.
Poliomyelitis.
Pneumonia.
Tuberculosis.
Leprosy.
Ringworm.

(*b*) Diseases frequently transmitted by contact:
Cholera.
Enteric fevers.
Plague.
Dysenteries.
Helminthic infestations.

It will be clear from the above list that the present-day 'Infectious Diseases Hospitals' do not cater for all the infectious diseases. Further the status of an "Infectious Diseases Hospital" as an isolation hospital falls down immensely if we consider the sources of infection and the mode of spread of the infectious diseases. Let us consider for a moment what we mean by isolation, and in which diseases it is necessary. By isolation we mean the separation of persons suffering from communicable diseases, of carriers of the infecting organisms (*i.e.*, all those harbouring the infective organisms) from other persons, in places and under conditions, that prevent the direct or indirect conveyance of the infective agent to other persons. Isolation is recommended in the following infectious diseases:—

1. Small-pox.
2. Chicken-pox.
3. Measles.
4. Mumps.
5. Septic Sorethroat.
6. Whooping cough.
7. Influenza.
8. Diphtheria.
9. Meningitis.
10. Poliomyelitis.
11. Tuberculosis.
12. Cholera, Bacillary Dysentery, Enteric fevers.

I think it will help to clarify my views if we consider the salient points in the epidemiology of the above diseases under the heads: (1) name of disease, (2) sources of infection, (3) mode of spread, and (4) isolation (*vide* annexed table).

Name of disease	*Sources of infection*	*Mode of spread*	*Isolation*
Small pox and Chicken pox ..	Typical or atypical cases in the active or prodromal stages	Infective agent is present in the secretions of the mouth and nose and discharges from the lesions and may be transmitted by direct or indirect personal contact, and possibly by flies	From the first appearance of symptoms, till the disappearance of all scales and crusts
Measles	Cases in the active or prodromal stages	Infective agent is present in the buccal and nasal secretions and transmission is by direct or indirect contact	During the period of catarrhal symptoms and until the cessation of all abnormal mucous-membrane secretions
Mumps	Typical cases and atypical recurring cases.	Infective agent is in the buccal and nasal secretions, spread by direct or indirect contact	Until the parotid gland has returned to normal size.
Septic sore throat ..	Typical or atypical cases or carriers. Cows may be healthy carriers becoming infected from man	Infective agent is in the nasopharyngeal secretions of human beings or in the milk of a carrier cow. Spread by direct or indirect contact and by use of infected milk	During the clinical course of the disease and convalescence, especially by exclusion of the patient from the production or handling of milk
Whooping cough ..	Typical cases, atypical cases and carriers also dogs and cats	Infective agent in the discharges from the laryngeal and bronchial mucous membranes, spread by direct and indirect contact	During the catarrhal stage and upto 3 weeks from the onset
Influenza	Typical or atypical cases	Infective agent in the nasopharyngeal secretions spread by direct or indirect contact	During the period of illness.
Diphtheria ..	Typical or atypical cases and carriers	Secretions from the mouth and nose, and from the lesions of other places, if any. Spread by direct or indirect contact	Until virulent bacilli have disappeared from the secretions and lesions as determined bacteriologically
Poliomyelitis ..	Typical and atypical cases and carriers	Infective agent present in secretions of nose and pharynx and in faeces, transmission by direct or indirect contact also by flies and milk	Isolation for 3 weeks from the onset, but the period of communicability may precede the onset of the symptoms by several days
Tuberculosis ..	The open case	Infective agent in sputum spread by:— 1. Droplets and droplet nuclei 2. Dust 3. Fomites	Till the sputum is bacteriologically negative
Enteric fevers, Cholera, Bacillary Dysentery ..	Typical and atypical cases and the carriers	Infective agent is present in excreta; transmission by direct or indirect contact and also through food, drink and flies etc.	Till the excreta is bacteriologically negative
Plague	Typical and atypical cases in rats and other rodents. In pneumonic plague man serves as the source of infection	Infective agent is present in the blood of infected rodents and in the sputum of pneumonic plague patients; transmission by fleas and direct.	Isolation in vermin-free screened rooms till the symptoms, and sputum are bacteriologically negative

A glance at the above summary will show that it is not only the typical case occurring in a locality which is the source of infection but the atypical or the subclinical case, the incubatory carriers, the healthy carriers and the convalescent carriers are all as potent sources of infection as the 'Typical Case' that has been segregated into the Isolation Hospital in the hope of healing down the infection.

The policy of the isolation of sick persons within a community is based on a failure to realise that the clinical picture presents a very incomplete description of the true state of affairs. If isolation could remove from the community the whole or even the great majority of the infected individuals, it could have exerted a considerable influence on the prevalence of an infective disease, but unfortunately it does not achieve this end. This has been proved by the epidemiological studies of various epidemics in several countries and by the experimental studies of infection in a herd conducted by Greenwood and Topley. The value of the isolation hospital therefore must apparently be judged by the benefit which it confers on the sick within its walls, for it would seem to have little effect on the health of the community as a whole. As such the value of an Infectious Diseases Hospital is reduced simply to that of a general hospital and any wing of a general hospital can serve as an Infectious Diseases Hospital.

While it is true that the general preventive measures, such as clear water supply, safe milk and food supply, general improvement in sanitation and general measures reducing the frequency of insect vectors of infection, and last but not the least, measures to improve the resistance of the susceptible host, would on the whole cause a great reduction in the incidence of a number of infections, this hope has not been fulfilled in the case of respiratory infections. It is in the case of infections of the respiratory tract that it is particularly difficult under modern conditions of civilisation to devise any generally applicable and effective means of preventing transit of the infective agents from host to host. The story however is different with tuberculosis.

Among the specific infections tuberculosis takes pride of place as a killing and crippling disease in our country. In this subcontinent with its 400,000,000 inhabitants, the tuberculosis problem is appalling in its immensity. The facilities, for dealing with it are in inverse ratio to the size of the problem, and figures probably bring this home better than words. On a conservative estimate the annual mortality from tuberculosis is 500,000 from which it may be inferred that at least 2,500,000 cases of open tuberculosis exist in India at any one time. Thus it is estimated that at least 500,000 beds are required for tuberculosis patients, instead of the 7,000 now available.

It is in tuberculosis that although most of us become infected with the tubercle bacilli only a few remain infective. The focus of infection usually becomes walled off, so that the organism is imprisoned and may remain in a dormant state for years, but the individual is not infective to others. The open case, is the only nucleus of infection and if he is isolated to a place where his sputum and naso-pharyngeal discharges could be safely disposed off, the source of infection to the members of his family, his friends and visitors and his neighbours has been effectively removed. Tuberculosis is a very important disease in India and this is also the disease whose spread can be most effectively checked by proper preventive and curative measures. My contention is that in the post-war construction scheme when a number of District hospitals are going to be remodelled, there may be provision for a separate wing, having cubicles, etc., for the infectious diseases cases and the present day isolation hospitals be remodelled as tuberculosis hospitals for the admission and care of the open cases of pulmonary tuberculosis. This will also mean a great convenience for the patients, as then a case of cholera who comes to a general hospital will not have to be shunted to the 'I. D. Hospital' as is being done now, and also the Civil Surgeon who will be the Superintendent of the hospitals will be able to exert a better medical and administrative control of these cases, when they come directly under his care than when they are miles away. Moreover no harm would be done if some delay is involved in the shifting of a tuberculosis case from the out-patients department of a general hospital to the tuberculosis hospital, but, if this has to be done for a case of cholera or of diphtheria it may lead to serious consequences.

In the end I cannot emphasize too emphatically that the isolation of the open cases of pulmonary tuberculosis, especially those occurring in the families of the poor, the uneducated and the ignorant, is the most important single measure for the prevention of the spread of pulmonary tuberculosis, and that even the B.C.G. vaccination may prove a failure if the 'open cases' of lung tuberculosis are allowed to sneeze and spit about freely all over, as they are doing at present.

II

HOW TO STRENGTHEN AND INVIGORATE THE INDIAN MEDICAL ASSOCIATION

P. S. GUPTE, M.B.B.S.,

Nasik

This article is written not for reading only but for action by the members. The I.M.A. is now in existence for twenty years and has entered its 21st year on 28th December, 1948. During this past period, it cannot be gainsaid, that it has achieved much importance and prestige in the eyes of the world. The I.M.A. fought with other bodies to emancipate the nation and the medical profession from the foreign domination and succeeded in achieving freedom. Now time has come when we can say "rise, awake, receive boons".

The Indian Medical Association represents the entire profession of India. Amalgamation of I.M.A. and All-India Medical Licentiates' Association will soon be an accomplished fact and the confluence of the two bodies will be a great force to further their aims and objects. But from my close observation I find that the medical profession in India as a whole does not take as much interest in the existence and activities of the Association as it deserves. I have met with medical pratitioners who are quite unaware of its existence. It has on its register only one-fourth of the medical profession in the country, while our ultimate goal is to have on roll every medical practitioner possessing a registrable qualification in India. It is, therefore, incumbent on well-wishers that every effort is made to increse its membership and invigorate its activities.

We can reach this goal by doing consistent and vigorous propaganda. Vice-Presidents of the Association are entrusted to do this work which I think few have carried out to satisfaction (See rule No. 18 BbIV). In the constitution of the provincial branches the same rule is enacted but not practised. A flying visit of a President to some towns and cities will not bring about the desired end. There should be a rule that Presidents and Vice-Presidents should give a report of what they have done to increase the membership during their tenure.

To reach the nook and corner of the whole country, I would suggest to entrust the work of enrolment to the branches formed at each district town. Each such branch should make a census of medical practitioners in its area and keep a directory. These branches will be the nearest link to urban and rural practitioners. The members of these branches can contact rural practitioners and convince them of the importance and advantages of being a member of the Association. Constitution of the Association should recognise district branches which can collect nominal subscription to defray their expenses. A small contribution from the Central Fund will help them to conduct the most important and life-giving activity of the Association.

To keep mofussil branches dynamic and working, provincial branches should regularly ask for quarterly news-letters from each branch under its care. They should be written on prescribed forms reporting activities under different headings, so that information will be uniform. Number of members on the roll, number of meetings held and subjects discussed, local activities in the interest of public health, etc., should be mentioned in such news-letters. With their aid provincial journals can be conducted on a sound basis. From these journals local branches will come to know what activities are being carried on in other areas and what improvements need to be made in their own. In order to keep up interest of medical men in districts, district conferences should be held according to conveniences. Such conferences will bring together talents from surrounding areas who will discuss matters of importance in presence of all members and thus create interest amongst them.

While writing about conferences I want to refer to the monetary help which should come forth from all the members in the area and even outside it. Even though in the rule No. 21 H(1)b of the constitution it is mentioned that the expenses of a conference shall be borne wholly by the branch which holds it, it is after all co-operation from all the members which will make conferences successful. Burden should be divided and taken up through sense of brotherhood by all members. Every body may not attend a conference but every member can certainly send some contribution to lighten the burden of the branch holding it.

Leaving aside many objects for which the Association is formed, I would stress two objects for the attention of all members. The first object is promotion and advancement of medical and allied sciences in all their different branches and the second object is improvement of Public Health and medical education in India. In declaring these objects the Association expects every member to take keen interest in the medical science and social medicine. To add knowledge to science and to look after the health of the public is the supreme and noble aim. Every effort must be made to accomplish these objects. That India must stand foremost in the medical science, should be our burning desire. But it should be remembered in this connection that it is not only the number but devotion to science which counts most. All branches should form plans to promote knowledge and create desire for knowledge amongst their members.

To attain the second object, *i.e.*, social medicine, members should be encouraged to take interest in medico-political, medico-social, medico-industrial and other branches of social life. After all it is for the society that we work and it is our bounden duty to give our best to the society.

From what the Association has achieved so far, there is much to be proud of its membership. The illustrious leaders have laid a sound foundation and now it is for us to raise a magnificent and lasting structure by our solid and sustained work.

III

MATERNITY AND CHILD HEALTH (WELFARE) ORGANISATION IN WESTERN COUNTRIES

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Maternity and Child Health Organisation in Western countries is a part of an important public health organisation and ordinarily a woman medical officer of health with a public health qualification is in charge. Different countries work in various ways according to the local conditions.

Maternity Service in England

In England maternity service is as follows:—

The assistant medical officer of health, along with her administrative duties, is in charge of a maternity home where a Premature Baby Unit is attached and where research on premature babies is done.

The doctors in charge of maternity and child health centre have all got public health qualification but in places where such doctors are not available private practitioners have been paid for to take clinical duties at these centres for specified hours of the day. The chief work for these doctors are to take clinic—antenatal, neonatal, infants and toddlers, also venereal diseases and birth control clinics. Afternoons are left free when they attend hospital to follow ward clinics or special clinic conferences. They do not do any domiciliary work.

The health visitor, one for about 100 births, is in charge of neonatal infants and toddlers; and helps in school medical inspection and visits hospitals. She is not in charge of antenatal cases or any supervising of midwives, as it is done in India. The health visitor takes child clinic in the Maternity and Child Health Centre, and those that need doctor's consultation are sent on, but as a routine she sees to the healthy children.

When a post-natal woman is being discharged from a hospital the area health visitor is intimated and an early visit is done in the house. In some places the health visitor accompanies the mother and child to her house from the hospital.

Another activity is School Medical Inspection. She has a number of schools in her area and she takes turn to visit a school at least once a month to check the students' health. She also assists the school medical officer when he makes his routine medical examination.

She also visits homes, where patients are advised for hospitalisation, whether it is a man or a woman: in houses where treatment should be carried out at home she visits to give such instructions.

The superintendent of midwives is in charge of training midwives. There are no private midwives in the State. All work under the health department or hospital and with private doctors.

There is a notification Act in England and birth is notified within 48 hours. Why?

(*a*) So that quick and prompt aid can be given if mother or child not doing well.

(*b*) Health visitor can visit the home as quick as possible.

Notification is also done in cases of puerperal fever and ophthalmia neonatorum.

The medical students have to take 20 cases in the district as a part of their midwifery training.

Social workers are attached to hospitals and usually visit homes to convey instructions and also instruct about the kind of treatment and to administer other needs. They also assist in the child welfare centre to maintain records, to weigh babies and render other helps which benefit both mutually.

The child health sections which belong to Public Health Department are those indicated in the beginning.

All antenatal examinations are done in the Maternity and Child Health Centres, whether the patients want confinement in a hospital, or under a private practitioner or by a home service. No abnormal obstetrics is done in the ordinary home. There are maternity and nursing homes that confine normal maternity cases.

Home Helps—Ordinary women who are given some knowledge in home keeping, domestic science etc. are employed by the Public Health Department. These women are sent out to those homes where a patient wants a hospital delivery or is obliged to go to the hospital for confinement, and she has no one to look after her house.

The whole maternity service runs in a very good team work, every one co-operating with the sole object of rendering the best service to the woman and her baby.

Statistics:

Home delivery	*Hospital*
30%	70%

In Ireland

The working is just the same, but due to poor condition there is 70 per cent of home delivery and 30 per cent hospital. Anesthesia during delivery is administered by the midwives trained to give such in the homes.

MATERNITY SERVICE

- Antenatal
  - Conducted at M. & C.H. Centre
- Delivery
  - Patient's home
  - Private practitioner
  - Hospitals
- Postnatal
  - M. & C.H. Centre
  - Hospital if treatment is indicated

CHILD HEALTH SERVICE (UNDER P. H. DEPARTMENT)

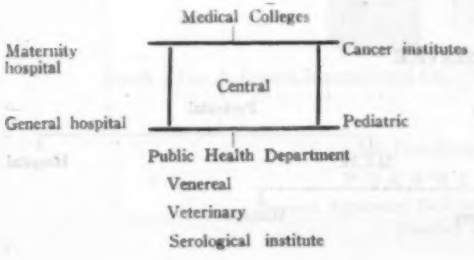
- Premature units
- Maternity & Child Health Centres
- Day & Residential Nurseries Child Adoption Centres
- (Education Deptt.) School Medical Inspection Convalescent Children
  - Blind, Deaf & Dumb, Diabetic, Congenital plegias Infantile paralysis Educationally sub-normal

ADMINISTRATION OF MATERNITY & CHILD HEALTH ORGANISATION

- Director of Public Health
- Senior Medical Officer of Health (Woman)
  - Assistants
    - Incharge of Maternity Home & Premature Unit
  - Administrative Officer In-charge of Venereal Clinics
    - Supdt. of Health Visitors
    - Supdt. of Midwives
    - Supdt. of social workers
    - Home helps

Maternity Service in Sweden

Sweden has a population of 7 million and 1 doctor for every 1,000 population. It is unique in having a centralised medical service in the country. The following will convey a more graphic picture:—

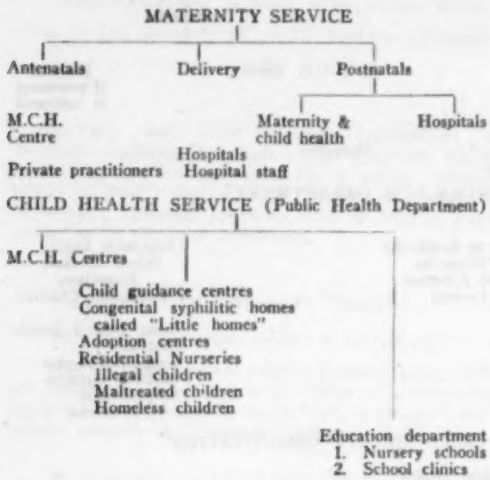


There are practically no home delivery midwifery service in Sweden. All pregnant women are seen at the Maternity Centres, where they are seen either by full time employed doctors or part time private practitioners. These cases ultimately all go to the hospitals for confinement. In the maternity hospital, hospital doctors have been given all facilities to examine their private patients and these doctors are allowed to confine their patients in the hospitals. Private practitioners who are family doctors to pregnant patients send their cases to the hospitals for confinement.

Child Welfare Service is excellent. Health visitor (1:50 births) follows the health of the baby from the time the baby leaves the hospital. Clinics are taken at the child health centre by medical personnel who are highly qualified in pediatrics. When the clinics are taken the health visitors of the area are present.

The child adoption institution is most interesting. full particulars of the adopting parents are known before adoption of the baby is given. The baby is then re-

gistered under the name of the adopting parents. The baby leaves the institution with full set of clothes (both winter and summer set) supplied free from the institution. The institution still patronises the baby up to the age of 12 years.



The social side of venereal service is also interesting. When the infected man comes for treatment, at once a letter is sent to the woman who has infected him to come for treatment. If she does not comply after three reminders, she is reported to the police who have a woman section. This section has the authority to bring the accused for treatment to the hospital. She is detained in the hospital which is exclusive for such women and given full treatment and then discharged. The rate of venereal infection is the smallest among the western countries in the world.

Maternity Service in Denmark

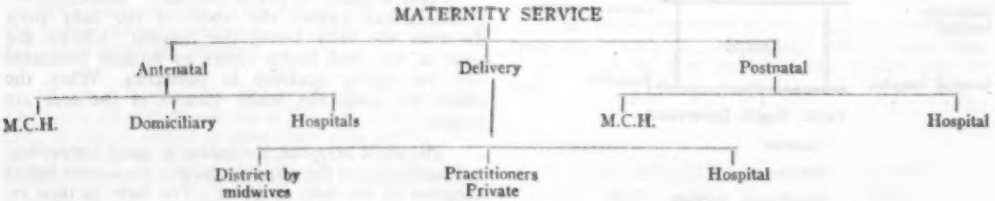
This country which has a population of 4 million is mostly rural and 90 per cent of babies are born in the homes, conducted by trained district midwives who belong to either private or state organisation.

There is a school of midwives which admits about 50 pupils a year, and it is attached to the maternity hospital run by the University. The professor of obstetrics and gynaecology takes the pupil midwives in obstetric lectures.

The school is supervised by the superintendent of midwives who is solely responsible for the practical training of the midwives. These midwives along with institutional delivery also do home deliveries.

There is an unique organisation called the 'Queen's own district nursing service' which conducts almost 80 per cent of the births in the districts. It is a well organised body which trains district midwives. On the hilly places and mountainous districts the nurses do their work by riding. Each nurse conducts about 20 cases a month, and she has solely the confinement part, apart from the antenatal, while the trainee pupil midwife attends to the postnatal mother and baby for 14 days, and if there is anything that needs attention she either calls the midwife or a private doctor. This organisation has a very good record of natural normal deliveries; there are very few instances when a doctor's aid is called for and has also a record of low maternal and infant mortality.

Denmark is noted for its anti-tuberculosis drive. When I had been for my tour there, the whole country had just been completed with mass radiography. There is a Central Tuberculosis Centre, which is meant for just detailed diagnostic purpose. The Mobile Unit for mass radiography, consisting of a doctor, nurse and the machine operator moves from village to village and before that, rapid propaganda is made through the press, through radio and posters all over the village asking people to get themselves examined when the Mobile Unit moves. The beauty of the scheme is that workers, irrespective of the job held, are all given leave for an hour or so to get themselves examined. This also applies to officials and school children. 20 people in an hour are x-rayed. If the mass radiography is done in a peripheral centre, then many more are x-rayed within an hour. If there is a slight doubt regarding the normality of the x-rayed picture, that person is sent to the Central Tuberculosis Institute, where thorough diagnosis is done and subsequent treatment is given either in a hospital or sanatorium. Anti-tuberculosis scheme is a state service and an essential service of a public health problem. It is no voluntary organisation as in India.



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ORARSAN Acetarsol, B.P.	Tablets of 4 gr. for oral administration. Does not produce irritation of the gastro-intestinal tract.	For the treatment of Congenital Syphilis, Yaws, Lambliasis, Amœbic Dysentery, Colitis, Diarrhœa, Malaria.
B.A.L. (British Anti-Lewisite)	Administered by intramuscular injection as a 5 per cent. solution in oil with 10 per cent. benzyl benzoate. Supplied in 2 c.c. ampoules in boxes of 12.	An adjunct in the treatment of V. D. An effective antidote for Arsenic, Mercury and Gold poisoning.

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CASE NOTES

TOXIC REACTIONS OF UREA-STIBAMINE

Report of A Case

D. N. CHATTERJEE, M.B. (CAL.),

Resident Physician, Chittaranjan Sishu-Sadan, Calcutta.

INTRODUTION

In the treatment of kala-azar, derivatives of antimony have proved very useful. The value of the drug is proved by the fact that with antimony the death rate has been reduced to 10 per cent from 90 per cent. In a series of 18,000 cases (Micks) the mortality has been only 7 per cent with antimony whereas previously the mortality rate was variously estimated between 96 per cent to 98 per cent. Although tartar emetic proved to be of immense value in the treatment of kala-azar, its toxicity made it imperative to search for a less toxic and if possible a more potent remedy, which ultimately resulted in the introduction of a pentavalent organic antimony compound. The discovery of Urea-stibamine by Brahmachari in 1922 has revolutionised the treatment of kala-azar.

Various other antimony compounds have since come in the field but so far as intravenous therapy is concerned urea-stibamine still appears to be the most reliable and most widely used drug in our country. In most instances especially in children, who tolerate it very well, the 3rd or the 4th injection is effective in controlling the temperature. The main drawback, apart from the technical one of giving it intravenously, is its toxicity. That is why many physicians still hesitate to use it in private practice. Though the fatalities have not been many—the very severe reactions noted in some cases are enough justification to make one very cautious in its free use. Of the various toxic symptoms described nausea and retching are very common.

Cyanosis and irregularity of pulse have also been described. Long-continued use has led to the development of various nervous manifestations, *e.g.*, headache, general depression and rarely loss of consciousness.

Of the severe reactions, anaphylaxis-like reactions have also been described. It is not known exactly what determines these toxic manifestations of organic pentavalent antimony compounds.

It has been frequently seen that different batches of urea-stibamine, though prepared under identical conditions, differ markedly in their toxicity. It has also been shown that toxicity of urea-stibamine does not depend solely upon the total antimony content. Even with an appreciably low antimony content a sample may produce severe toxicity.

It has been noted that small amount of antimonic and antimonial acids are formed during the preparation of urea-stibamine and that the toxicity is related to the amount of antimonius acid present whereas a small amount of free urea in the urea-stibamine causes less toxic symptoms. Whatever may be the cause of these toxic symptoms it appears that antimony by itself is not responsible for these toxic symptoms. Personal sensitisation plays a dominant part in some of these cases. In this connection the following case appears to be quite interesting.

CASE REPORT

A male child aged 11 years was admitted in Chittaranjan Sishu Sadan on 15.6.46 with the following complaints:

(1) Irregular fever at intervals of 10-15 days—4 years.

(2) Gradual enlargement of abdomen—2 years.

(3) Cough—3-4 months.

The patient was diagnosed by the atending physician as a case of kala-azar and he was given urea-stibamine—once in Dacca and again in Chandernagar but he manifested severe toxic symptoms in both the instances and was told that he could not be treated.

PHYSICAL EXAMINATION

He was a poorly nourished child with dry rough skin with dark pigmentations especially on the forehead.

Respiratory system—Cough; respiration rate 24 per minute; regular; no other abnormality detected.

Circulatory system—Neck veins prominent. Pulse—112 per minute; regular; volume and tension good. Apex beat in 4th space ½" medical to left nipple line.

Digestive system—Appetite good. Lips—clean; Tongue—clean and moist. Gums—unhealthy, spongy, bleeding. Nausea at times.

Abdomen—Vein prominent—filling from below upward. Spleen—enlarged up to the level of umbilicus, firm. Liver—enlarged up to the level of umbilicus, firm. Fluid-shifting dullness present.

Temperature—100°F (axilla).

LABORATORY FINDINGS

Blood—Hb—55 per cent; R.B.C.—3·46 million per c.mm.; W.B.C.—4,600 per c.mm.; Poly—45 per cent; Lympho—50 per cent; Mono—4 per cent; Eosino—1 per cent; Aldehyde test and Urea-stibamine test—Both strongly positive.

TREATMENT

As the patient gave history of severe reactions following injections of urea-stibamine intravenously, we tried for other non-antimony preparations but could not procure any. Then we decided to try with very small dose of urea-stibamine—taking all precautions.

On the first day—0·025 gm. of urea-stibamine was dissolved in 10 c.c. of distilled water and 1/10th c.c. of this solution was taken in a tuberculin syringe (not used previously for tuberculin injection) which was made upto 1 c.c. with blood drawn from the patient. This was gradually pushed up to the 10th mark of the tuberculin syringe (1 c.c. divided to 100 marks). No sooner was this done the patient cried out in agony and asked to stop the injection. The injection was stopped immediately and 3 minims of adrenaline chloride was injected. The patient began to cry and became very restless, his eyes became so congested, as if blood would come out from the conjunctiva, he began to complain of intense itching and burning sensation all over his body. His lips became very swollen, the lower one literally touched the chin. He became cyanosed and began to perspire profusely and wanted to lie on the floor where he rolled for full 3 hours till he became quiet. His swollen lips became normal in about 5 hours time, but redness of conjunctiva took full 24 hours to subside.

About a month afterwards a different antimonial drug was tried. On the first day ½ c.c. (20 mgms. per c.c.) was very slowly injected intravenously without any reaction. Next day 1 c.c. was given intravenously. Then the dose was gradually increased to 3 c.c. intravenously daily. In none of these injections was any reaction noticed and the patient was discharged clinically cured. The child has been seen last in February, 1949 when he was found doing well.

Discussion

Toxic symptoms of urea-stibamine are varied. Chatterjee has seen acute gastro-intestinal upset after the injection of urea-stibamine. These reactions are rather unfortunate as no other remedy for kala-azar exists which is as effective as this drug. With the advent of new antimonials which can be administered intramuscularly, it is probably prudent to start the treatment with these drugs. But the fact observed in this case that even intravenous injection of the second antimonial did not give rise to any toxic reaction is interesting. It has been said that urea-stibamine is a loose combination and not a pure chemical compound, which accounts for the toxic reaction of the drug. We wonder whether the compound V-hexonate makes the toxic reaction of antimony less. This point requires further work as it is very difficult to dogmatise on the strength of only one case.

Conclusion

1. Serious toxic symptoms of urea-stibamine are discussed—with especial reference to its occurrence in a child.

2. It is stressed that antimony itself is not the offender.

3. When one pentavalent organic antimony preparation cannot be used intravenously, a different one can be tried by the same route.

ARSENIC ENCEPHALOPATHY

B. J. PUNDIT, M.B.B.S.,

Cantonment General Hospital, Deolali Camp.

Mrs. X.Y.Z., aged 25 was suffering from acute asthmatic attacks for the last four years. The constitution of the patient was weak. She was examined during attacks and was diagnosed as a case of bronchial asthma. Suspicion of T. B. lungs was removed by x-ray examination of the lungs and sputum examination. Before the treatment started the following investigations were done:—

(1) X-Ray of the lungs—Nothing abnormal.

(2) Sputum—No acid-fast bacilli.

(3) Blood—Eosinophilia ++

(4) Urine—Nothing abnormal.

(5) B. P. 110/70 mm. Hg.

With usual precautions the first dose of 0·15 gm. of N.A.B. was dissolved in glucose, calcium gluconate and redoxon forte and was given intravenously and afterwards 10 c.c. of blood was withdrawn and given intramuscularly. After one week the same dose repeated. After 10 days of the second dose, 0·30 gm. of N.A.B. was given. On the second day of the third injection she started getting headache and vomiting. Next morning she was admitted in an unconscious condition. Clinically it was diagnosed as a case of toxic encephalitis. Reports of C.S.F. and urine were normal. She was treated on the following lines:—

1st day of admission—Injection calcium thiosulphate I.V. B.D. Injection of glucose 25% + Cal. Gluconate 10% 10 c.c. Injection of vitamin B_1, B_2, B_6 and C.

Diet—Liquid (Pt. could not swallow). Glucose, barley water, B.G. Phos (Tonic), milk, coffee etc.

Mixture—Saline purgative and alkaline mixture. Rectal saline 4-hourly as the liquid intake was not sufficient.

2nd day—Condition same. She could open and close eyes with a vacant look and no response. The above treatment was continued. Injection B.A.L. every four-hourly.

3rd day—Same condition. Same treatment. B.A.L. three times.

4th day—She started improving as she could follow and could express with fingers. She could not speak. Injection B.A.L. twice a day. All other injections were stopped.

5th day—She could speak with slur and could be followed with difficulty. Injection B.A.L. twice. There was stomatitis, gingivitis and glossitis.

6th day—She could speak and gave history of her illness that after the third injection of N.A.B. she was not feeling normal, had headache and vomiting and since evening of 2nd day of injection, she started becoming giddy. She did not know anything afterwards till to-day. Injection B.A.L. continued for a week once a day. Injection whole liver extract with vitamin B complex and vitamin C given for glossitis. She improved quickly thereafter and was discharged after a week.

Comments

Due to cumulative effects the patient is liable to suffer from toxic effects of pentavalent arsenic administered even after careful examination and in small doses. Pathologically there are petechial hæmorrhagic spots in the brain and other visceras due to toxic effect of arsenic on these organs. Due to tissue damage, there is deficiency of vitamin B_1, B_2, B_6 and C in the affected tissues and blood levels, giving rise to symptoms of their deficiencies. Hæmorrhage is caused by low concentration of vitamin C giving rise to deficiency of cementing substance of tissues, resulting in petechial hæmorrhages. In the tissue this arsenic is fixed as complex substance of arsenic and body proteins. British-Anti-lewisite (B.A.L.) destroys the complexes and increases the rate of excretion of arsenic in its detoxicated form.

Calcium thiosulphate nutralises the toxin and toxic effects.

Petechial hæmorrhages caused by deficiency of cementing substance is corrected by vitamin C which fixes cementing substance in the tissue and corrects the permeability of tissues and stops hæmorrhagic transudation from tissues and promotes diuretic action.

Gastro-intestinal manifestations are corrected by B complex and crude liver extract.

Even though the toxin is liberated yet damaged nervous system may show signs which are corrected by vitamin B_1.

It is difficult to follow why a blunderbuss injection composed of arsenic, glucose, calcium gluconate and vitamin C was chosen. Arsenic should preferably be given alone dissolved in double distilled water—Ed., *J. Indian M. A.*

TOXIC EFFECTS OF SULPHONAMIDE DRUGS

T. D. RAJOO

Civil Surgeon, Resident Medical Officer, K. E. M. Hospital, Secunderabad.

In the latest edition of Text book of Medical Treatment by Dunlop it is stated:

"Much nonsense has been written on this subject and much unnecessary apprehension thereon has led to inadequate dosage being employed. Considering the widespread use of sulphonamide series, the total quantity of toxic reactions of importance is remarkably small. Having said this we must equally warn the practitioner that there are definite and serious effects calling for the immediate cessation of all drugs of the series and demanding in some instances prompt counter measures. The basis of all serious toxic effect is sensitization of the body to the sulphonamide employed."

Case Report

On 26-6-1949 at 10-30 A.M. Miss U. S., a college student, aged 16 and daughter of a doctor was admitted with the history of having taken 8 tablets of cibazol the previous day for sore throat and fever and of having passed scanty urine with blood since morning (26-6-1949). She complained of pain in the left iliac fossa.

On examination—throat was congested; tenderness present in the left iliac fossa. She was vomiting frequently and was getting drowsy. All other systems normal. Temperature 98·6°F.; pulse—88 p.m., B.P. —115/75. Urine—reaction acid, albumin trace, sugar nil, acetone nil, amorphous debris and R.B.C. in large numbers present. W.B.C.—11,000 per c.mm.; polymorphs—75 per cent, lymphocytes—22 per cent, mononuclears—2 per cent, eosinophil—1 per cent. Throat smear—no organisms found.

Treatment—The patient was put on alkali mixture. Saline 2 pints was given intravenously, one pint water was given per rectum by drip method; poultices to the loin; liquids by mouth. Patient spent a restless night and was given atropine injection to relieve the pain with no effect. She passed in all 10 ounces of blood stained urine from 10-30 a.m. to 6-30 a.m. next morning (27-6-1949).

Progress—27-6-1949. No improvement. Patient passed blood-stained urine in drops. She was given one pint sodium sulphate 4·285 per cent and 10 per cent glucose in normal saline intravenously and during administration she complained of pain in the right iliac fossa also. In all she had 2 pints and 6 ounces of fluid by mouth, one pint of water per rectum and one pint of sodium sulphate 4·285 per cent and 10 per cent glucose in normal saline in 24 hours. The

output—vomited 27 ounces of fluid and passed 6 ounces of blood-stained urine. Slept very little. Temperature 99°F.-100°F. Pulse 88-100 p.m.

28-6-1949. Patient was given 3 pints saline intravenously by drip method, one pint of water per rectum by drip method and she took by mouth 2 pints of fluids, weak tea, barley water and fruit juice. She was also given a decoction of freshly prepared Indian corn silk. Vomited 27 ounces of fluid. Dry cupping was done over the left kidney at 1 p.m. Blood pressure rose to 150/90 mm. One doctor thought she had slight icterus. About 5 p.m. she passed 1½ ounces of blood-stained urine. Dry cupping over the left loin was repeated at 9 p.m. During the night at about 11 p.m. diuresis started and she passed 60 ounces of urine by morning. Vomiting stopped after diuresis started.

Vandenberg Test: Direct—negative; indirect—faint positive.

Blood urea: 20 mgm. per 100 c.c.

Urine: Alubumin trace, sugar nil, bile nil and acetone nil.

29-6-1949. Patient cheerful. No pain. No vomiting. Took fluids by mouth freely. Passed urine freely. 70 ounces in 24 hours.

30-6-1949. Improved remarkably well. Took solids and felt happy. R.B.C. in moderate numbers in the urine. Patient was discharged cured on 2-7-1949.

It is stated "to push fluids is to sound the death knell of an anuric patient; the more fluids are pushed the quicker his exitus. Under prevailing conditions, the majority of anuric patients, even those with remarkable conditions survive only from 3 to 5 days. The majority of these patients do not die of uræmia; indeed, they tolerate uræmia fairly well. The chief cause of death is pulmonary œdema due to excessive oral or parenteral fluid intake." So long as fluids are given by drip method intravenously, pulmonary œdema is not likely to occur. In this case oliguria was due to sulphonamide crystals and fortunately the patient responded to treatment without any recourse to ureteral catheterization or decapsulation.

Acknowledgment—I am thankful to Dr. L. D. Khatri, L.R.C.P., M.R.C.S. (ENG.), F.R.F.P. & S. (GLAS.), Superintendent K. E. M. Hospital, Secunderabad, for allowing me to publish this article.

More systematic efforts should have been made to find sulphonamide crystals in the urine—ED., *J. Indian M. A.*

APPEAL FOR DONATIONS TO THE I. M. A. RESEARCH FUND

The I.M.A. Rsearch Fund was started several years ago. It has a credit balance of only 18,326-14-9 which is hardly a drop in the ocean. Out of the capital amount three scholarships of Rs. 250|- p.m. each tenable for one to two years were granted last year. This policy is not sound as it will deplete the entire fund within a few years. The aim of the I.M.A. is to build up an endowment fund and to pay for scholarships out of the interest that may accrue on that fund. This deserves the co-operation of all members of this Association and they are requested to contribute liberally to the fund through their respective branches and to collect donations for it from others. The collection drive should be taken up by all the local and provincial branches in right earnest and the monies collected should be sent to the central office for credit to the fund.

Hanging Bridge,
Faiz Bazar, Daryaganj,
Delhi.

AMIR CHAND,
Hony. General Secretary,
Indian Medical Association.

JOURNAL OF THE

INDIAN MEDICAL ASSOCIATION

CALCUTTA, NOVEMBER, 1949

VENEREAL DISEASES

Before the World War II interest in venereal diseases was lukewarm in this country. A few cities had a skeleton arrangement for the treatment of gonorrhœa and syphilis. This is partly due to the ineffective and long drawn treatment available at the time. Defaulters in treatment were plenty. Stricture of the urethra and late manifestation of syphilis were not uncommon findings in the out-patients department.

Towards the later part of the last war anxiety in the treatment and control of venereal diseases was apparent in the official circle. This was perhaps, more due to the increase of V. D. in the fighting forces than any thing else. Because of the closer contact between the fighting forces and the civilian population, the incidence in the army rose to an alarming height. So as a preventive measure, anti-V. D. campaign was started in many big cities of this country. The newer antibiotics and sulpha drugs were great assets. After a period of quiet antipathy, people realised the utility of such a free and generous service offered by the State. The clinics became full of patients in no time.

The figures in the annual report of the anti-V. D. activities of the Government of West Bengal during 1948 are illuminating. We believe similar figures will be found in the reports of other provincial Governments. During the year under review 2,25,944 cases were treated at the 13 clinics functioning in the province. As compared with the previous two years, the figures were 1,76,043 in 1947 and 2.71,526 in 1946 in the United Bengal[1]. It appears that mainly the people from the midle-class voluntered for treatment. The number of labourers was only 9,901 in a total of 22,974 men who disclosed their profession. We have reasons to believe that the figures do not show the prevalence of venereal disease in the people correctly. One of the reasons may be that proper propaganda, facility and arrangement for treatment do not exist near the large labour population of the province. Only 2 centres are situated in the mill area which may be considered inadequate. It is believed that these people still resort to "quick and guaranteed cure" from the quacks who hold treatment demonstrations near labour quarters every Sunday.

Propaganda among the labour population and sub-divisional business centres have not yet developed. This may be conveniently done by social workers, doctors, and even religious priests. Demonstration with lantern slides and cinema may be made subtle and educative. Simultaneously free and confidential treatment must be made available.

During recent years a great advance has been made in the research for prevention and cure of venereal diseases. We do not know how far the organisations under the different provincial Governments, have taken up this work. Published works hardly show any signs of such efforts. For obvious reasons the methods of the army are more modern and realistic. It is complained that authorities in some provinces are still old-fashioned and would prefer to punish a person with venereal disease than give free treatment. This attitude is deplorable.

The arrangement for blood tests for syphilis is poor in the mofussil. One appreciates the offer of the Government laboratories in the cities to test the blood. But it looks that a laboratory unit is essential as a part of the anti-V. D. activity in this country. Research in this direction is also necessary. Biological false positive serum reactions from those actually due to syphilis must be differentiated as far as possible. In this connection the work of Nelson and Mayer[2] may be helpful.

The recent methods of preventing gonorrhœa after promiscuous intercourse are of particular interest to the medical branch of the army. Sulphonamide and penicillin prophylaxis have been tried extensively in the American Army and Navy [3, 4, 5]. It remains to be seen whether these methods suppress gonorrhœa or suppress gonorrhœa without cure or prolong the incubation period and suppress the early sign of syphilis.

[1] *J. Indian M. A.*, **18**:436, 1949.

[2] Nelson, R. A. and Mayer, M. M.—*J. Exp. Med.*, **89**: 369, 1949.

[3] Kline, E. F. and Ryan, T. C.—*Nav. Med. Bull. Wash.*, **40**:360, 1942.

[4] Arthur, R. D. and Dermon, H.—*Am. J. Syph. Gon. Ven. Dis.*, **27**: 261, 1943.

[5] Ealyle, H. *et al*—*Publ. Health Rep. Wash.*, **63**:1411, 1948.

One of the main reasons of defaulters in the treatment of syphilis is its prolonged course. Attempts have been made to a much shorter course of treatment with different preparations of penicillin. Reference can be made to an address by Dr. Joseph Earle Moore,[6] to the section of experimental medicine of the Royal Society of Medicine and the Medical Society for the Study of Venereal Diseases. Whether the expense and treatment with this type of penicillin will be cheaper and effective, it is worth an investigation. What are the results of penicillin treatment of syphilis in this country? What are the doses necessary for an Indian patient and what is the relation between clinical failure and relapse of the blood serum reactions in the first year after the treatment of early syphilis? Does penicillin administration give protection to the fœtus in a pregnant syphilitic woman? What is the effect of penicillin on cardiovascular syphilis and Jarich-Herxheimar reaction? Newer drugs are being found effective in the treatment of syphilis, *e.g.*, streptomycin and aureomycin. What control is envisaged to treat only the sulpha- and penicillin-resistant cases with these new drugs? These are some lines of investigation which the organisations should take up immediately rather than being satisfied with the routine work.

How venereal diseases can be completely eliminated is now engaging the attention of countries in the West. Much social and epidemiological studies are being undertaken[7]. Macfarlane[8] in an analysis of the records of 1,000 patients attending the V. D. Department at the New Castle General Hospital revealed the following: 82 per cent received some assistance from the unit; 1,560 contacts were brought to examination and of these 70 per cent were suffering from gonorrhœa or syphilis or both; 74 per cent were married, public houses were by far the commonest meeting places. Personal factors leading to promiscuity included unhappy homes, criminal tendencies, poor to moderate intelligence, irreligion, ill use of leisure, drab lives, drinking and poor moral fibre.

Apart from the disease itself venereal infection has a social and psychological background. Elimination of some causes of promiscuity will certainly lessen the incidence of venereal disease. Attention may be profitably directed to this side of the question at an early date.

[6] Moore, J. E.—*Lancet*, **1**:872, 1949.

[7] *Brit. M. J.*, **1**:1044, 1949.

[8] MacFarlane—*Publ. Health*, London, **62**:4, 1948.

NINTH BIHAR PROVINCIAL MEDICAL CONFERENCE, DARBHANGA

The Ninth Bihar Provincial Medical Conference will be held at Darbhanga under the auspices of the Indian Medical Association, Darbhanga Branch, on the 26th and 27th November, 1949.

Details may be obtained from the Organising Secretary, Dr. A. D. Chatterjee, Raj Hospital, Darbhanga.

CURRENT TOPICS

THE WORLD MEDICAL ASSOCIATION

Brief note on the last meeting of the Council of the World Medical Association by Dr. S. C. Sen, New Delhi.

The last Council meeting of the World Medical Association was held in Madrid (Spain) from April 20—24, 1949. The Council was invited as guest of the city of Barcelona from April 25—27, 1949.

Council Meeting

111 items were discussed and the main and important items considered by the Council were as follows:—

1. All the members of the Council were present, excepting Dr. Buftamente, Assistant Secretary for Latin America, who was late by one day.

2. Dr. John Yui of China presented to the Council a red and gold "wooden fish"—an ancient article used by Budhist priests in China for calling mass meetings. This was received with thanks and gratitude to Dr. Yui and the Chinese Medical Association.

3. The minutes of the last meeting was approved.

4. The financial report was adopted and it was noted that the American Medical Association, in addition to paying its normal dues, made a contribution of $2000 a year to the United States Committee for the support of the secretariat and still further, paid the travelling expenses of its representatives for attending Council meetings.

5. The report of the Secretary-General was accepted.

6. Reports on the following subjects were submitted to the Council by the various committees and it was decided to continue further study on these problems:—

(*a*) The standard of medical education.
(*b*) Advertisements and sale of secret remedies and appliances.
(*c*) Unqualified medical practice.
(*d*) Post-graduate medical education and refresher course.
(*e*) Social security.
(*f*) International code of medical ethics.

7. It was the general opinion that the World Medical Association and the World Health Organisation are mutually essential to each other.

8. The dates of the next meeting of the Council and of the General Assembly in London, were fixed.

9. The Royal Egyptian Medical Association was granted membership.

10. The host association in Spain treated the Council members extremely well and the city of Barcelona made excellent host for the members of the Council.

THE BRITISH COMMONWEALTH MEDICAL CONFERENCE, CANADA

Brief note on the British Commonwealth Medical Conference held at Saskatoon, Canada, on June 7, 8 & 9, 1949 by Dr. S. C. Sen, New Delhi.

The following representatives attended the Conference:—

Dr. J. G. Hunter, Australia; Dr. William Nagner, Canada; Dr. Harris McPhedran, Canada; Dr. C. C. de Silva, Ceylon; Dr. P. J. Delaney, Eire; Dr. Charles Hill, Great Britain; Dr. H. Guy Dain, Great Britain; Dr. S. C. Sen, India; Dr. Howard Drover, Newfoundland; Dr. J. O. Mercer, New Zealand; Dr. N. Ahmed, Pakistan; Dr. A. H. Tonkin, South Africa; Dr. E. S. Dismorr, Southern Rhodesia.

2. Dr. Anderson, incoming President of the Canadian Medical Association gave the address of welcome.

3. Minutes of the meeting held in London in September, 1948 were considered and adopted.

4. The Canadian Medical Association had arranged a wonderful programme giving glimpses of the Canadian scene in the medical sphere.

5. Series of twenty-minute addresses were presented, each being followed by from 30 to 40 minutes of discussion. Subjects covered were as follows:—

(*a*) Medical Licensure in Canada.
(*b*) Prepaid Medical Care Plans in Canada.
(*c*) The Provision of Tuberculosis Prevention and Care in Canada.
(*d*) Hospitalization Services in Canada.
(*e*) The Swift Current Health Insurance Scheme.
(*f*) Medical Care of Veterans in Canada.
(*g*) Canada's Federal Health Programme.
(*h*) Federal and Provincial Health Legislation in Canada.
(*i*) The Future of Medicine in Canada.
(*j*) Under-graduate Medical Education in Canada.
(*k*) Post-Graduate Medical Education in Canada.
(*l*) The Organization and Management of a National Medical Association.

These addresses were extremely interesting and instrucitve. Copies of these will be available in due course and it is hoped that they will be published, if possible in full in the Journal of Indian Medical Association for the information of all our members.

6. Though, in the beginning there were some doubts about the necessity and utility of holding such Conferences every year, more so because of financial difficulties, it was realized towards the end of the Conference how necessary it was to hold the Conference every year till at least all the Commonwealth countries have been visited. It was decided, subject to ratification of the National Medical Organisations, to hold the next Conference in Brisbane (Australia) from May 16, 1950, just before the annual meeting of the Federation of the British Medical Association in Australia.

7. A new system for financing the Conference was suggested on the basis of paying membership strength of each Association; U.K. has 42,000 members; India, 12,000; Canada, 9,000; Ceylon, 550; Pakistan, 500; Australia, 7,000; Eire, 1,700; New Zealand, 1,750; S. Africa, 3,500 and S. Rhodesia having only 180. After a good deal of discussion it was tentatively agreed that U.K. would pay 53·5 per cent of the expenses, India instead of paying 16 per cent, would pay 2 per cent and Pakistan, Ceylon and Southern Rhodesia each would pay 1 per cent. On an estimated expenditure of £4,000, India's share would come to £80. This suggested arrangement was made posible because of the willingness of other National Associations to take up more than the legitimate contribution based on membership. This decision will need to be ratified by the National Medical Associations before it can be considered final.

I request that this item be placed on the agenda of the Working Committee on its next meeting for decision.

8. Apart from the actual business of the Conference, there was good deal of entertainment given by the Doctors in Saskatoon, the Saskatoon Branch of the Canadian Medical Association and the Executive Council of the Canadian Medical Association and by the Government of the Province of Saskatchewan.

9. We also had the privilege of attending all the meetings of the Council of the Canadian Medical Association and its annual meeting.

10. Apart from these activities, I personally took this opportunity of a trip to Canada to visit the various Universities and Medical Faculties and in Montreal, Quebec, Ottawa, Toronto, Winnepeg and Saskatoon. I tried to meet as many important people as possible with a view to getting opportunities for the specialised training of young Indian Doctors. The details of my work in this connection are given separately. I need only point out that I was received in this connection with every courtesy and consideration and I have hopes that opportunities will be forthcoming in the near future for training in Canada for a fairly large number of Indian Doctors.

* * * * *

On the 10th of August, I received an offer of 3 posts, 1 in surgery, 1 in general medicine and 1 in children's diseases, from the Medical Faculty of the University of Ottawa and I have sent 3 Doctors who were available at short notice for these 3 posts of residents. These Doctors left on the 25th instant so that they could be in Ottawa before 1st September. These Doctors, if found satisfactory, would be given 3 years' training as residents. They will have free board and lodging and $50 a month in the first year, $75 for the second year and $100 for the 3rd year. Before I left, I received verbal promises for 2 resident jobs in Neurosurgery at Saskatoon and 4 resident posts in T. B. Sanitaria, Saskatchewan Province and I am waiting for firm offers regarding these and also for information from other centres.

P.S.: (1) 2 resident posts were offered to me (verbally) in Dublin (Ireland) for mental diseases.
(2) Some posts were offered at Philadelphia & New York, U.S.A.

NOTES AND NEWS

THE HOMŒOPATHIC ENQUIRY COMMITTEE, GOVERNMENT OF INDIA

The Homœopathic Enquiry Committee was appointed by the Government of India last year to make a survey of the position of Homœopathic practice in India, to report on the available facilities for training in and the place of Homœopathy in relation to medicine in all its aspects and to regulate such training and on the desirability of State control of the practice of Homœopathy and the manner of its control.

The Committee met eleven times at various places in India and took evidences from witnesses representing a wide range of interests concerned with the subject matter of the enquiry. A comprehensive questionnaire was drawn up and widely circulated. They visited Homœopathic centres, institutions and pharmacies all over the country.

From the figures supplied by various institutions, the Committee surmise that the number of Homœopathic practitioners may be between 200,000 to 300,000, whereas those who have received some sort of institutional training may number only about 5,000.

Need of Standardisation

The Committee are strongly of the opinion that no State should permit quacks and quackery to flourish and that steps should be taken to eliminate them and to devise suitable measures for the control of the practice of Homœopathic medicine. The issue of undesirable advertisements and literature must also be controlled. The methods of preparation of Homœopathic medicines in India, their testing and dispensing should similarly be controlled. Colourable imitations of preparations of the regular system of medicine should not be permitted to be used and necessary steps should be taken to ensure that no Homœopathic medicines are prepared or sold which do not conform to the prescribed standard.

After surveying the position regarding training in and practice of Homœopathy in the U.K., U.S.A., Brazil and Mexico, the Committee conclude that Homœopathy, as a system of medicine, has a recognised status in countries, but that those who desire to practise it must have registrable medical qualifications.

Institutions which provide training in Homœopathy fall under five categories, namely:—(1) Those which attempt to teach the basic, pre-clinical and clinical sciences, although their equipment is generally very meagre and falls short of the standard of a medical school.

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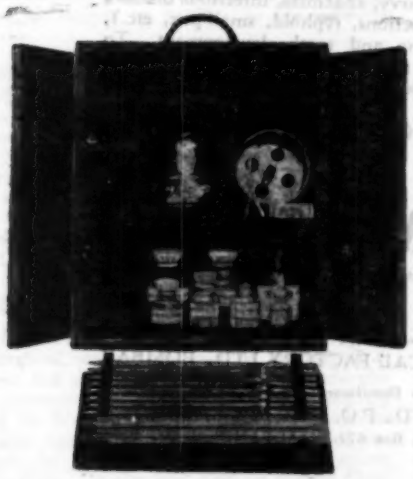

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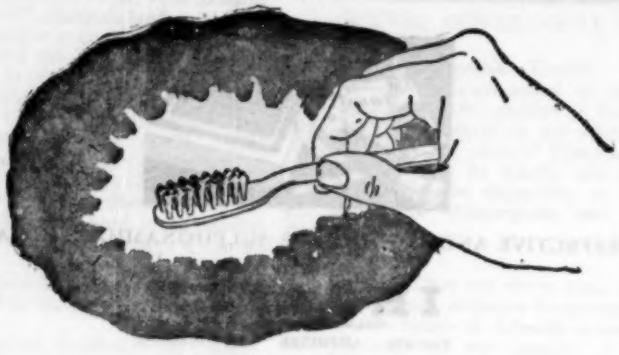

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(2) Those where basic, pre-clinical and clinical sciences are to be taught in addition to Homœopathy although there is no equipment for giving scientific training.

(3) Those where no attempt is made to teach either the basic or the pre-clinical or the clinical sciences.

(4) Those which have got class rooms and some charts but regular teaching is not provided.

(5) Those which exist only in name, their activity being confined to selling of degrees either by correspondence course or even without it.

None of the existing institutions has got facilities for research.

The Committee recommend that only institutions coming under categories (1) and (2) above be allowed to continue on condition that they conform to the standard of personnel, equipment and training in Homœopathy as may be laid down and the institutions coming under other categories should be abolished.

Immediate steps should be taken by the Central and Provincial Governments to declare illegal the use of bogus degrees, diplomas or titles and their colourable imitations.

The Committee has also recommended the establishment of a Central Council of Homœopathic medicine with a wholetime paid secretary.

The functions of the Council shall be mainly of a co-ordinating and advisory nature, but the Council will have powers to control which will be exercised through the Provincial Boards or faculties in the following matters:—

(1) Standard equipment and training of affiliated Homœopathic Institutions; (2) Standard of Examinations to be held for Homœopathic students; (3) Registration of existing Homœopathic practitioners; and (4) Homœopathic Pharmacies, pharmaceutical laboratories and manufacturing concerns. The Council will have full powers of inspection in all matters.

Provincial Boards or faculties are to be similarly constituted.—*The Hindusthan Standard.*

HEALTH REGULATIONS FOR AIR TRAVEL

R. H. Barrett, Medical Officer, Ministry of Health, England, writes: It may be of interest to practitioners and others to know that this particular aspect of international co-operation is being actively pursued by the World Health Organization, which has recently taken over the duties previously carried out in this field by the Office International d'Hygiene Publique in Paris. In October, 1948, an Expert Committee on International Epidemiology and Quarantine met in Geneva and considered amongst other matters a revision of the International Maritime and Aerial Sanitary Conventions, which are to be replaced in the future by WHO Sanitary Regulations. It was very encouraging to note the more liberal attitude adopted by the committee towards quarantine restrictions in the light of the advances made by modern methods in disease control.

Plague and Typhus Inoculations—These inoculations will not be required to travellers by the new regulations. It was considered by the committee that the use of new insecticides and rodenticides now available should be the most effective method of dealing with outbreak of these diseases.

Cholera Inoculation—This inoculation will not ordinarily be required of travellers; but it will be permissible for individual Governments to require it of passengers coming from local areas infected with cholera.

Transit Passengers—Air passengers in transit through foreign air ports will not be subjected to any sanitary measures in force for that local—*e.g.*, compulsory inoculations or vaccinations—provided that they are not suffering from an infectious disease and that they do not leave the precincts of the air port. A passenger will not be considered to have left the air port if he is conveyed to another air port in the same vicinity under the supervision of the health authority.

Immunization of Travellers—The committee's views on the subject of immunization of travellers as a quarantine measure are worth quoting at length.

"The committee noted that there had developed since the last war a widespread tendency on the part of health administrations to require from travellers certificates of immunization, irrespective of the value of such immunizations for the protection of the countries reached by the travellers or for that of the travellers themselves.

"The committee was aware of the many disadvantages inherent in the compulsory production of immunization certificates, and considered that the serious obstruction to free and rapid travel caused by such requirement was out of all proportion to the protection likely to be afforded to the country of arrival."

The Personal Declaration of Health—This document was compulsory for air travellers in 1944 Sanitary Convention for Aerial Navigation, but its use under the WHO Regulations will be optional at the discretion of individual Governments.

Summary—In the future, therefore, it seems that the statutory immunizations likely to be required of travellers, apart from those required for personal protection—*e.g.*, T.A.B.—will be confined to vaccination against small-pox and inoculation against yellow fever.

with anti-cholera inoculation as an occasional measure. Practitioners with practical experience of these diseases in epidemic form will probably not quarrel with this decision. But the traveller will no doubt impatiently await the day when world epidemiological condition will render even these measures unnecessary.

The Expert Committee reflected this feeling in the first of the "principles" upon which the new regulations will be based when it was agreed that "WHO Regulations would be needed until the true object of international epidemic control—the eradication of the pestilential diseases—had been achieved."—*Brit. M. J.*

THE ROCKEFELLER FOUNDATION: POPULATION PROBLEMS

The Rockefeller Foundation last year appropriated nearly 15 million dollars for public health projects, medical research, and studies in the natural and social sciences. The new president of the Foundation, Mr. Chester I. Barnard, who succeeded Mr. Raymond Fosdick, suggests in his latest annual review that in future wider fields of study may be contemplated, including some of those hitherto regarded as the preserve of religion and philosophy. There is need, he says, for a reclassification of the problems of modern society, and especially those population problems which often underlie national, class, and racial conflicts. They lend themselves to generalization and over-simplification, with quack remedies as a natural consequence. The problems are complicated by wide differences in customs, rules of inheritance, moral ideas, and religious principles. It is customary to say that the world is over-populated: "About half the world's population," says this review, "is close to starvation, and another quarter suffers from malnutrition." But the world may not be over-populated if its peoples will co-operate in the economic use of natural resources and if productive capacity can be increased. The obstacles to what Mr. Barnard calls social engineering are human inertia and insufficiency of knowledge.

Research work in genetics, endocrinology, the physiology of reproduction and sexual behaviour has already been supported by the foundation. The studies of Kinsey and others have emphasized the biological maladjustment between the sexual drive and population needs. The bearing of this on morals, on the incidence of venereal diseases, on frustration, and on crime is evident. In the field of human behaviour the rapid changes introduced by modern technology raise many question. Do these changes challenge the meaning and relevancy of ancient moral precepts? What is the bearing of endocrinology or pathology on the moral assessment of human conduct? What is the relevancy of the application of ancient codes of individual behaviour to modern corporate action? The Rockefeller Foundation is proposing an examination of the nature of the conflicts of ethical systems to-day in the light of modern changes. No doubt it will find that these subjects of inquiry are much more controversial than investigations concerned only with public health and medical science. But the Foudation is taking this course because it believes that there can be no satisfactory solution to the problems of our civilization which does not take into account the ideals and spiritual aspirations of men.—*Brit. M. J.*, **2**:239, 1949.

CENTRE FOR INTERNATIONAL CO-OPERATION IN LONDON: THE CIBA FOUNDATION

The Ciba Foundation for "the promotion of international co-operation in medical and chemical research" was opened on June 22 at 41, Portland Place, London, W. 1, by Sir Henry Dale, O.M., F.R.S. The foundation has been endowed by the firm of Ciba, manufacturing chemists of Basle. The centre will be used as a meeting-place for medical research workers and clinicians, and there is accommodation for 15 visitors. If the dignity and elegance of the foundation's headquarters are anything to go by, the work that will be done there should be a high standard.

Speaking at the opening ceremony for the founders, Dr. Max Hartmann said that the centre had been established in London because of the pre-eminence of British research work, and because the scientific publications in the English language take first place in the world. He believed that the field of research in medicine was limitless, but team-work was essential if practical results were to be achieved. He hoped that the foundation would make practicable the interchange of views among medical scientists on as wide a scale as possible.

Lord Horder, the chairman of the trustees—the others being Lord Beveridge, Professor E. D. Adrian, and Mr. Raymond Needham—referred to the ready acceptance by the founders of a carefully worded trust deed, defining the objects of the foundation. He hoped that clinicians would play an important part in the discussions at the centre and that it would become a forum for international co-operation.

New Responsibilities—In declaring the centre open Sir Henry Dale said that it had many well-conceived and attractive features. The executive council was to be advised by a panel of distinguished scientists. He congratulated the foundation on obtaining a site so close to the centre of London's medical "quarter." He believed that there was nothing more remarkable in this scientific era than the change in the last half-century from traditional therapeutics to the ever-widening range of remedies which deal radically with the causes of disease. The production of these remedies and their proper use laid new responsibilities on doctors and chemists.

The relations between those employed in the pharmaceutical industry and those in hospital, university, and Government posts needed to be strengthened.

A atmosphere of genuine confidence and co-operation was wanted for the development of therapeutic advances. Secrecy was a crippling disease of all healthy scientific activity, and he hoped that the foundation would help to maintain the tradition of international collaboration in medical science. Sir Henry thanked the founders for establishing the centre in London, and said it was appropriate that the idea should originate from Switzerland, the chosen home of the international spirit in medical activity. In conclusion, Lord Beveridge expressed gratitude to Sir Henry Dale for his encouraging remarks.—*Brit. M.J.*, **2**:27, 1949.

INSTITUTES OF MEDICAL STUDIES IN THE U.S.S.R.

V. Lebedeva, Director of the Central Institute of Advanced Medical Studies of the U.S.S.R., writes:

The provision of facilities enabling physicians to undertake advanced studies to improve their theoretical knowledge and practical qualifications is an important part of the public health system of the U.S.S.R. In the Soviet Union the advanced training institutes for physicians at the hospital polyclinics, maternity homes, maternity and child-welfare centres, and medical educational institutions are under the central authority of the State, which organizes and finances them.

The Soviet Government has issued a number of decrees on advanced medical studies. After every 3 to 5 years' work in the provinces every physician has the right to advanced training at State expense. During training he continues to draw his pay from his place of employment. The doctors attending the courses are provided with living quarters and all other conditions ensuring effective study.

Before the October revolution in 1917 Russia had only one institute for advanced medical studies. It was in St. Petersburg, and very few physicians could afford the cost of studying there. Only 9,906 physicians graduated from the institute in the 32 years of its existence (from 1885 to 1917), but in 25 years of Soviet power over 37,000 physicians graduated from it—that is, 1,500 a year, or five times as many as before the revolution.

The Soviet Government opened ten similar institutes in Moscow, Kazan, Kiev, Kharkov, Odessa, Minsk, Novosibirsk, Tashkent, Tbilisi, and Baku. The largest is the Central Institute, in Moscow, founded in 1930. Over 52,000 physicians have graduated from it in the 18 years of its existence—an average of 3,000 a year.

There are two systems of raising the qualifications of physicians (1) specialization—that is, learning a new medical specialty; and (2) advanced training, when the specialist gains further knowledge of an already acquired specialty. The course for advanced training used to be of 2 to 3 months' duration, but now it has been prolonged to 4-6 months and in some cases to 12 months.

This course covers the main branches of medicine —such as therapy, surgery, pædiatrics—and also special subjects such as endocrinology, helminthology, laboratory testing, diet, remedial physical culture, and so on.

Physicians can improve their qualifications in various branches of medical science, including pathophysiology, pathological anatomy, and other theoretical disciplines.

The Central Institute—The Central Institute of Advanced Medical Studies has 49 chairs distributed among the three faculties of surgery, therapy and sanitary hygiene. The teaching staff includes seven members of the Academy of Medical Sciences, six corresponding members, 43 doctors of medicine, and 111 masters of science (medicine).

The major clinics of the Central Institute are in the Botkin Hospital, the largest in Moscow. The chairs of theoretical subjects and hygiene, such as epidemiology, microbiology, communal hygiene, food, and industrial hygiene, are part of the Institutes' organization. The chair of public health is of special importance. The task of this department is to train skilled administrators and organizers of the public health service. The training course is 12 months.

The Institute maintains contact with its graduates through the consultation bureau, which advises them on various theoretical and practical subjects. Hundreds of physicians in the provinces are engaged in scientific work under the guidance of the Institute. In the second-half of 1948 alone twenty physicians defended their theses on material received from the Institute.

The serial publications, A Practical Physician's Library, issued by the Institute and consisting of a number of monographs on problems of theory and practice, serve as an important means of contact between the physicians and the Institute. The Institute has its publishing house, which issued 40 books in about 500,000 copies in the last two years. It also has a library with 70,000 volumes.

The Central Institute sends its teachers out to various places. Some teams have already visited the Lithuanian, Latvian, Esthonian, Byelorussian, Central Asian, and Transcaucasian Republics.

One of the most important tasks of the Institute is training post-graduate students and housemen in all the medical branches represented at the Institute. This course of training is three years.

The five-year plan of the Ministry of Health envisages advanced training and specialization for most physicians. The major part of the plan will be carried out by the Central Institute of Advanced Medical Studies in Moscow.—*Brit. M.J.*, **2**:67, 1949.

MODERN HEARING AID DESIGN

O. C. Leadbitter writes:

In the past years there has been considerable progress in hearing aid development, and small single unit hearing aids of advanced design capable of providing increased benefit to the defended public have made their appearance. Some of the most important developments in this field are as follows:

Automatic Volume Compression—Delayed automatic volume compression can be regarded as a major hearing aid development. When designing a hearing aid with volume compression, it is necessary to decide upon a level of amplification at which the control should operate and to fix a time constant to avoid interfering with the intelligibility of the reproduced sounds.

It is not necessary to employ extra valves to introduce automatic volume compression, a small metal rectifier being among the most important additional components.

Experiments with such hearing aids show that in cases of deafness with a recruitment factor the difficulties usually encountered in fitting a hearing aid are overcome, the best results are obtained, and damage to the patient's hearing function is avoided.

Further tests have also shown that in cases of middle ear deafness without any recruitment factor, hearing aids with automatic volume control are also preferred and in advanced inner ear cases the subduing of background noise enhances the benefit obtainable from an electrical hearing aid.

Many deafened persons have been deterred from adopting a hearing aid due to the fact that when the aid is worn they are unable to become accustomed to hearing their own voice at such a loud level through the instrument, and this disadvantage is also avoided with automatic volume compression.

The compression should start at a very low level and increase regularly with the sound pressure although to meet the requirements of the recruitment type of deafness, compression can start at a rather higher sound level.

Acoustic feed back from the earpiece to the amplifier, which is sometimes heard in the form of a high pitched squeal from the earpiece when the aid is worn, is automatically controlled, and if the earpiece is removed from the ear and held close to the microphone fret, an instrument with automatic volume compression will produce only an intermittent whistle, showing how the amplifier is compressed as the instability tends to build up.

Printed Circuit—Considerable progress has been made in the printing of circuits on either plastic or ceramic bases and apart from eliminating trouble through bad soldering and misplaced wiring, standardization of disposition of the components ensures closer performance tolerances in production.

The simplest form of circuit printing is the abrasive spray technique in which a thin plastic sheet is first sand-blasted through a screen and then receives a spray of either copper or silver through a similar screen from a suitable spray gun and the metal adheres to the previously roughened surface. The printing of components such as resistors and condensers is also possible.

Hearing aid receivers—Piezo crystal receivers and miniature magnetic receivers have been the subject of much development work. Crystal receivers are inclined to peak on the higher frequencies but the production of still further improved crystal earpieces with a comparatively flat response is in hand.

Magnetic receivers of the low resistance type with improved characteristics have been produced employing new type magnets and diaphragms, with a consequent reduction in size.

Sub-miniature valves—British sub-miniature flat glass valves of exceptionally small size and with very low current drain have been developed, and the electrodes of these valves are mounted in such a way as to eliminate microphony.

Long Life Batteries—The design of a single unit hearing aid is, to a large extent, governed by the batteries employed, and the development of very small amplifier units has been made possible by the introduction of small batteries with a capacity many times greater than that of an ordinary primary battery of the same size. The kalium penlight cell of the alkaline type has a capacity equal to that of a sal-ammoniac battery five times its size. The kalium battery is the only long life battery so far developed which is free from a liquid electrolyte. Its uses a caustic potash paste which is carefully sealed, there being only a small breather hole near one end of the battery. Improvements have also been made in the construction of small low voltage, layer type high tension batteries to maintain a relatively low voltage, layer type high tension batteries to maintain a relatively low internal resistance and thus minimize the components needed in the hearing aid to effect decoupling and prevent interaction in the circuit.

Surface noise—Big strides have been made in devising methods for eliminating most of the noises picked up by clothing rubbing against the surface of the amplifier. This has been achieved by acoustic damping of the case and by new methods of mounting the microphone. The design of the mocrophone fret in the case has also received much attention and the latest method is to recess the fret or reduce the number of openings to the minimum. Surface noise has in the past prevented a number of people from taking full advantage of the use of a hearing aid and the new designs enable the hearing aid to be worn with much more comfort.

Invisible Ear Mould—The manufacture of a skeleton ear mould from an individual ear impression is now possible and the sound is conveyed to the ear mould by means of a thick plastic tube, the other end of which is connected to the receiver. This device involves very little loss of efficiency and permits the hearing aid to be worn quite inconspicuously.—*Medical World*, **72**:114, 1949.

CORRESPONDENCE

The Editor is not responsible for any views expressed by contributors

THE SCOURGE OF TUBERCULOSIS

Sir,—Those who take interest in the welfare of our people must have observed that tuberculosis and other preventable diseases are on the increase among our people. The past and the present Government have shown very little solicitude or taken the necessary steps to remedy these dangers which not only take a large toll of the population but render those who survive live a short and miserable life, not being able to earn material subsistence to keep body and soul together. In Western countries public health measures have eliminated some of these diseases and the mortality caused by others is considerably reduced. But in India so far there is no visible signs of improvement in public health. No body knows when the national health service or social insurance schemes will come into effect in India. We are paying more attention to the methods of treatment forgetting the axiom that prevention is better than cure. If we utilized our Indian drugs some of which are more potent and efficacious than the imported ones and limit the import of drugs from foreign countries to a minimum, we would have saved sufficient money to undertake preventive methods. The adoption of these methods would leave much to be desired, unless we strike at the root cause of these diseases. The root cause of tuberculosis and other maladies is poverty, overcrowding, bad sanitation, malnutrition and underfeeding. That these are the causes that produce these diseases has been conclusively proved in Western countries by the reports of the different bodies working in this sphere. Few have realised that connection that exists between bad health and the conditions of poverty in which a vast majority of people of our country are compelled to live. We have no statistics to prove how many old, adults and children are actually sick due to unregulated and insufficient diet. Tuberculosis develops when resistance to infection is lowered usually by overwork or under-nourishment or both. From this point of view the deaths that occur by these diseases may well be characterised as social murders. If a war or pestilence threaten us, everyone is excited at the prospect of the misery which may result; but these evils are to poverty as a grain of sand in the desert. Wars come and go and their greatest evil consists perhaps in the aggravation of poverty by the rise in prices they cause. Pestilences last their appointed season and then leave us—but poverty, the grim tyrant, abide with us through all ages and in all circumstances. For one victim that war or pestilence has slain, poverty has slain millions. Yet, our rulers are not alive to the enormous and incomparable magnitude of the evils of poverty. A clinic here and a sanatorium there may be of some utility, but these cannot cope with the problem. They can give treatment to few who suffer and who are at the beginning of the disease but they cannot prevent the incidence of the disease as they have no power to remove poverty and its consequences. In England patients of pulmonary tuberculosis are given a weekly allowance for attending clinics for treatment and advice, but this charity extends only to those considered curable. Noncurables and those suffering from non-pulmonary types are denied this benefit. In India we leave the victim to his own meagre resources which cannot procure him the luxury of Sanatorium treatment. Very often we see persons treated at a Sanatorium have, on discharge, to enter the wage struggle with their economic resources more depleted than when they began the treatment. This contingency compels them to seel labour energy in order to maintain and feed their family members, though they know that they have to desist from work and that they are destroying their only capital—the working power. It is generally possible to return to Sanatorium and usually they die early. Such deaths are truly murders perpetrated by the wage system. We cannot come to grips with tuberculosis by establishing sanatoria and clinics unless we solve the problem of poverty, squalor, nutrition; and our present efforts to dig out the disease seem to be futile attempts.—I am etc.

(Dr.) George De Silva.

Jubbulpore, 22.7.49.

INTESTINAL OBSTRUCTION TREATED WITHOUT OPERATION

Re: Article in May, 1949 issue of *J. Indian M. A.* on Intestinal Obstruction Treated without Operation.

Sir,—It is difficult to be dogmatic about a case of acute abdomen and more so without seeing it. But going through the case note I am tempted to think that it was a case of Volvulus of the sigmoid and for the following reasons:—

(1) Initial sharp pain followed by dull pain.

(2) Gradual distention of abdomen without any vomiting (There is no mention of vomiting. I take it that it was absent). This points to large gut obstruction.

(3) The fact that after the rubber tube negotiated a certain resistance a lot of fæcal matter and gas came out with relief of distention—confirms the diagnosis.

(4) The slight rise in temperature was due to infection of the peritoneum and which it was able to deal.

(5) There is no mention of which part of the colon was tender but I think it was the pelvic colon which yas tender.—I am etc.

S. K. Rana, M.B., I.M.S. (Retd.).

P.O. Khagaul, Dinapur, 31.7.49.

ALL-INDIA INDUSTRIAL PHYSICIANS

Sir,—With reference to an article by Dr. H. P. Dastur entitled "All-India Industrial Physicians" published in your May issue on page 305 in which he has invited opinions may I take the liberty to express my opinion through your esteemed Journal on the subject. The answer to Dr. Dastur's plea has already been partly published in the same issue on Page 295 under the heading "All-India Conference of Industrial

Medicine". From that note, it is well-known to all that a Society for the Study of Industrial Medicine already exists. The aim and objects, as adopted at the Inaugural Meeting of the Society on 19th July, '49 may be reiterated.

(*a*) Stimulation of enquiry and research into the causes, treatment and prevention of industrial diseases.

(*b*) Guidance of Industry with regard to the problem of industrial medicine and hygiene on the modern scientific principles.

(*c*) To secure effective and complete organization of the medical officers in industry.

The membership is open to all registered medical practitioners associated with industry.

The 26 Jamshedpur Founder Members have been joined by 80 more members. The Society's members are scattered about in places like Jamshedpur, Golmuri, Indranagar, Burnpur, Calcutta, Delhi, Bombay, Madras, Mines of Singhbhum, Mayurbhanj, etc., etc., and even in the U.S.A. 'The Proceedings' of the Society has provided a link between the medical officers of industry and given them an organ of expression to carry their message not only throughout India, Pakistan, Ceylon, Burma but also through the U.K. and the U.S.A.

It is our earnest hope that as the membership grows in different industrial areas, we may be able to start the branches of the Society for the Study of Industrial Medicine in the principal industrial cities, with the biggest industrial city, Jamshedpur, as the headquarters. The success of such a scheme lies in the hands of all the well-wishers of industry who by joining the Society for the Study of Industrial Medicine can achieve that end.

Another step to organize the Industrial Medical Officers is the Council's decision to endeavour to hold on 22nd and 23rd December, 1949 an All-India Annual Conference of Medical Officers in Industry. This Conference is to be held in the Steel City of Jamshedpur. All those who are interested in the problem of industrial medicine are invited.

To Dr. H. P. Dastur we are thankful for beckoning all the medical officers in Industry, as we have been doing for the past two years, to "come together and pool their talents". It is with the same notion that the Sociey for the Study of Industrial Medicine was started, and we invited Dr. Dastur to give a talk at the Society's scientific meeting in August which we published in the last issue of the Proceedings as well as the paper he read at the 9th International Conference of Industrial Medicine held in London. However, now Dr. Dastur seems to think it advisable to start a new—a brand new—society, which we feel is redundant and duplication and would not only be a waste of energy but definite disservice to the cause of Industrial Medicine in India. We feel it essential for the progress in Industrial Medicine, that all the medicos associated with industry should rally round the existing organization which has been started in the Country's biggest Industrial City, develop that Society, and use it as the All-India Body. In his letter, Dr. Dastur voices our own views once again, when he emphasises the need for a Journal of Industrial Medicine. Letter No. 1, gives answer to Dr. Dastur's plea. A Journal of Industrial Medicine already exists in the "Proceedings of the Society for the Study of Industrial Medicine". The Journal has cut its first tooth, so instead of wasting efforts in multiplication, let us all support the existing Quarterly Journal of Industrial Medicine and make that the medium of expression of the exponents of Industrial Medicine, as now Dr. Dastur is himself doing.—I am etc.

NAJIB KHAN, LT. COL., R.A.M.C. (Retd.),
Honorary Secretary,
The Society for the Study of Industrial Medicine.

Jamshedpur, 1.8.49.

PITY LICENTIATES

SIR,—To write anything on this section of medical men is no doubt painful to me also. But I am surprised to see that my Licentiate brothers are crying yet for their status, standard and other things for their betterment. Do they not find that, what their Leaders and their Organisation—A.I.M.L.A.—wanted, have been complied with.

They wanted to commit "Suicide" and the same had been very successfully done by abolishing all the medical schools throughout India apprehending no production of licentiates in the future. They wanted to be medical graduates, they had been very kindly given chances to go through the condensed M.B. course at a good amount of expenses, loss and labour. They wanted modification of the I.M.C. Act, it is likely to be modified but it is not known when and in what shape. Lastly they wanted to be Captain and to draw the same salaries as those of the I.M.S. Officers during the last Great War—I think the same was awarded to them during the War. There is yet one striking achievement for the licentiates and that is to merge themselves both physically and mentally with the graduates by amalgamating their own Organisation A.I.M.L.A. with I.M.A., which is predominated by the medical graduates.

Is it that my licentiate brothers are losing faith in their leaders. Do not my brothers remember that their leaders assured them that, with the very amalgamation of the two organisations a tremendous single voice will be raised for the interest of the licentiates and against which voice no power on earth will be able to stand, and again behind this voice the bright prospect of the licentiates is shining. My brothers, be quiet and calm and see where you are dragged in. All living enjoy the effects of their own doings. The Licentiates have dug their own graves and yet if the licentiates are not alert to their own interests, is it not fact that there will remain no other alternative for them but to fall in their own graves?

With due apology to all if it affects any one, I forward this letter to the Secretary, Journal Committee, I.M.A. for publication.—I am etc.

BIDHUBHUSAN MUKHERJEE,
Jt. Hony. Secretary, I.M.A.,
North Howrah Branch.

Salkia,
Howrah, 27.8.49.

CURRENT MEDICAL LITERATURE

Rapid Digitalization

Evans and others (*Brit. Heart J.*, **10**:103, 1948) write that the present clinical trial was designed to discover the most effective preparation for rapid digitalization when given orally or intravenously, by comparing the effect of as many preparations as possible in the same patient and under the same conditions. The following drugs were tested: strophanthin, ouabain and k-strophanthosid, digoxin, digitoxin, lanatoside C, digitalis leaf, and the tincture of digitalis. A clinical trial was made on 20 patients with auricular fibrillation and heart failure. Digoxin and lanatoside C proved to be the best and digitoxin was scarcely less efficient. Should it be necessary to induce digitalization within two hours, digoxin as 1·5 mg. intravenously or as 2 to 3 mg. orally, and lanatoside as 1·5 mg. intravenously only, can best accomplish it. To establish adequate digitalization within four hours digoxin, 2 mg. by mouth, is an effective method. As it is seldom necessary to obtain a digitalis effect in less than two to three hours, and as intravenous medication may be less convenient, digoxin, 2 to 3 mg. by mouth, is generally the best way to induce rapid digitalization.

Cardiac Pain in Women

Effort angina and coronary thrombosis are less common in women than in men, though with the passage of time the preponderance of men appears to be decreasing. Thus Mackenzie (Angina Pectoris, Oxford University Press, London) in 1923 found a ratio of 7 men to 1 woman with angina of effort, and in 1928 Parkinson and Bedford (*Lancet*—**1**:4, 1928) found only 7 women in 100 cases of coronary thrombosis. But in 1943 figures supplied by the Toronto Health Department (McCormick—*Un. Med. Can.*, **74**:1205, 1945) indicated a 2 to 1 ratio of men to women. Changes in sex incidence, as with changes in the frequency of coronary thrombosis as a whole, are difficult to establish, but it does seem clear that cardiac pain of all kinds is much more frequent in men, though the difference becomes less as age advances. It is also well established that effort angina is a particularly rare occurrence in women unless associated with hypertension. These views are confirmed by Summers (*Brit. Heart J.*, **10**:4, 1948) who found only three patients under 40 years of age in a series of 87 cases of angina of effort occurring in women, 84 per cent of whom had hypertension. The three patients under 40 had diseases other than coronary sclerosis which could account for the pain—two had anæmia and one aortic incompetence. If a woman with a normal blood pressure has chest pain suggesting angina of effort, such a diagnosis must be made with reserve and a search made for some structural change other than coronary disease. Angina depending on anaemia—and there is no doubt this may be the sole cause of the symptoms—while rare, is of particular importance, since cure of the anaemia may completely relieve the pain. The reason why men are affected so much oftener than women has never been explained. Summers was unable to find any connexion between smoking and alcohol and angina in his female patients, or with occupation, but McCormick thought that the increase in tobacco consumption by women might be responsible for the apparent recent change in the sex incidence.—*Brit. M. J.*, **1**:490, 1949.

Postmortem Studies After Treatment with Urethane

Letterer (*Klinsche Wochn.*, **26**:265, 1948, Ref. *J.A.M.A.*, **139**:125, 1949) reports necropsy studies on 2 men aged 60 and 69 treated with urethane for lymphogranulomatosis, on a woman aged 59 treated with urethane for hypernephroma and on a man aged 67 treated for leukæmic myelosis. Death resulted from pneumonia in all cases, from lobar pneumonia in 1 and from terminal bronchopneumonia in 3. The aleukocytic character of the microscopic picture of the pneumonias was striking; in addition there was noted a large number of causative agents in the alveoli of the lungs. The deficient formation of granulocytes was probably responsible for the weakening of the leukocytic defense, for the spread of the causative agent and for the atypical course of the pneumonic infiltration. Pneumonia with agranulocytosis is a reaction likely to result from treatment with urethane. The drug is responsible for the atrophy of leukocytes in normal lymph nodes and in those affected by lymphogranulomatosis. There is a simultaneous collagenization of the reticular fibres and a fibrosis of the entire lymph node; thus the lymphogranuloma becomes obliterated. The lymphocytes in the folicles of the spleen disappear and there is a simultaneous numerical decrease of nuclei in the pulp and a thickening of the sinus walls. There is no general decrease in the cells of the bone marrow; the maturing segmental forms disappear, while the number and the shape of the primary forms remain unchanged in the normal and in the leukæmic marrow.

Renal Biopsy in Hypertension

Whether or not the operation of thoracolumbar sympathectomy finds a permanent place in the treatment of hypertension, its present widespread use has made possible the examination of biopsy material from the kidneys of patients with hypertension of varying severity and has therefore provided much valuable information.

In 1943, Castleman and Smithwick (*J.A.M.A.*, **121**:1256, 1943) reported on such biopsies from 100 hypertensive patients, and they have now analysed the material from 500 patients (*Idem—New Eng. J. Med.*, **239**:729, 1948). This second report was prompted by the criticism that small biopsies from the surface of the kidney were unlikely to be representative of the histological changes in the kidney as a whole. The close similarity of the findings in the two series, the similarity of the grade of renal vascular change in biopsies from both kidneys in a series of 100 patients, and the correlation of these changes with the severity of the clinical picture suggest that this material gives a true picture of renal pathology in hypertension.

In 25 per cent of their cases pathological changes in the vascular system of the kidney were minimal or absent. This is a very different finding from the very high figures for renal arteriosclerosis reported by Moritz and Oldt (*Am. J. Path.*, **13**:679, 1937) on post-mortem material from hypertensive patients. Castleman and Smithwick conclude that hypertension often exists in man without any evidence of renal vascular disease or at least without sufficient evidence to explain the elevated blood-pressure. The figures for minimal or absent vascular changes in the kidneys of their patients are unlikely to be equalled in this country, where a more conservative attitude is adopted in the selection of hyperten-

sive patients for operation. Using a modified Keith-Wagener (*Medicine*, **18**:317, 1939) classification of retinal changes, 13 per cent of their patients had papilloedema (grade IV), 24 per cent showed grade—III changes, and 39 per cent had the minimal retinal changes of grades I or 0. There was some correlation, especially in the very low and the very high grades, between the severity of renal vascular change and the extent of retinal disease, and there was also a clear relation between the impairment of renal function and the degree of renal vascular change. In their first paper Castleman and Smithwick reported that in 74 biopsies on patients with grade—IV retinitis none showed the changes of necrotising arteriolitis. This emphasises the gap that now exists between the clinician's conception of the malignant phase of hypertension, based largely on the presence of papilloedema, and that of the pathologist who tends still to restrict the term to cases showing typical necrotic arteriolar changes.

Castleman and Smithwick seem to have established that hypertension can exist in man without gross renal pathology. This is in accord with the view that widespread arteriolar spasm precedes organic vascular change in hypertension and with the findings of Goldring and colleagues, (*J. Clin. Invest.*, **2**:637, 1941), who, using the inulin and diodrast clearance technique, reported that the earliest functional change in the kidneys of hypertensive patients appeared to be a reversible spasm of the efferent glomerular arteriole. Those who follow Goldblatt (*Physiol. Rev.*, **27**:120, 1947) in maintaining that renal ischaemia is the underlying cause of essential hypertension must apparently look elsewhere than the renal arterioles for a primary pathological lesion.—*Lancet*, **1**:232, 1949.

Infectious Mononucleosis and Infectious Hepatitis

Beek and others (*Gastroenterol.*, **11**:658, 1948) in this report present a study of 35 patients with clinical features and laboratory findings consistent with infectious (viral) hepatitis and infectious mononucleosis. Twelves acutely ill patients were carefully selected to point but certain resemblances and differences in the two orders. According to the authors, a serial study of heterophile antibody behaviour, the flocculation tests, and certain hepatic function tests in these disorders indicated the following resemblances and differences:

1. Significant increase in heterophile antibody titer occur only rarely in infectious hepatitis in contradistinction to infectious mononucleosis.

2. The agglutinin in the serum of cases of infectious hepatitis differs from that in infectious mononucleosis in its absorbability by guineapig kidney.

3. In both infectious hepatitis and infectious mononucleosis the serum flocculation tests (cephalin cholesterol, colloidal gold, thymol turbidity and 18 hour turbidity ratio) show a marked tendency to be positive and to remain positive for long periods.

4. Liver function measured by the ratio of esterified to total cholesterol is far less often abnormal in infectious mononucleosis than in infectious hepatitis. Sulfobromophthalein excretion is also only occasionaly abnormal in infectious mononucleosis.

5. It is suggested that in infectious mononucleosis, even more clearly than in infectious hepatis, the flocculation phenomena are associated primarily with alterations in the serum proteins and perhaps lipids. They would appear to be related to the liver changes in the disease only in so far as the latter contribute to the alterations in the protein and lipid components of the serum.

6. Serum alkaline phosphatase shows increased activity in most cases of both infectious mononucleosis and infectious hepatitis during the first month of disease. However, since most of the mononucleosis cases were not jaundiced while all of the hepatitis cases were jaundiced, the mechanisms responsible for hyperphosphatasemia may not be identical in these disorders. The degree of elevation of serum alkaline phosphate in non-jaundiced patients with infectious mono-nucleosis may occasionally be pronounced—*U. S. Med. News Letter.*

Agranulocytosis and Thrombocytopenia following Tridione

Forster and others (*Lancet*, **1**:517, 1949) write that in the case, reported during triodione therapy acneiform spots appeared and were followed by dazzle, neutropenia, and thrombocytopenia. The number of neutrophils continued to fall after triodione was discontinued.

It is clear that regular and frequent clinical and haematological examinations are of great importance. Monthly examinations, as suggested by Lennox, do not seem to the authors sufficiently frequent, since a fall in the leucocytecount, when it takes place, may be very rapid. A daily blood film, perhaps the ideal, is not always feasible in a large clinic. Following Whitby and Britton (1946), the authors agree that treatment with drugs which are potentially toxic to the bone-marrow should be stopped before the lower limit of normal of 1500 neutrophils per c.mm. is reached.

If the appearance of the acneiform rash, like that of the morbilliform type, is taken as an indication to stop tridione therapy, possible fatalities might be avoided.

It seems doubtful whether the taking of a drug should be resumed after a break, if once toxic effects on either skin or bone-marrow have been observed, unless such a patient is successfully "desensitised."

Idiopathic Ulcerative Colitis

Potts (*J.A.M.A.*, **139**:208, 1949) in giving newer concepts concerning causes and management of the condition writes that emotional stimuli from the hypothalamic region are transmitted through the spinal cord and are carried by the sacropelvic nerves to the rectum, sigmoid and descending colon up to and including the ascending limb of the splenic flexure.

Lysozyme (a mucolytic enzyme) is partly influenced by nervous control. The increased stimulation by the sacropelvic nerves presumably produces a higher titer of this enzyme. The loss of mucous protection allows the digestive activity of the tryptic enzyme from the pancreatic secretion and bacteria to take their toll on the mucous membrane.

Ulceration results from this pathologic-physiologic change.

Treatment should be directed at a (*a*) the eradication of the emotional stimuli, (*b*) paralyzing the sacropelvic parasympathetic nerves with atropine sulfate and (*c*) abolition of cortical inhibitory influences on the hypothalmic region by the use of barbiturates; (*d*) use of wetting agents to bind the enzyme as sodium alkyl sulfate to prevent their digestive acti-

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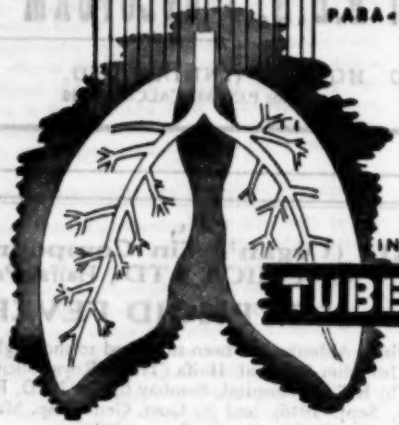

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vity and (*e*) use of sulphonamide drugs cautiously and only for limited periods.

Psychotherapy should be accompanied with rigid medical control at all times.

Relation of Vitamin A to White Blood Cell Count

Hassan and others (*Indian J. M. Research*, **36**:33, 1948) studied the blood of 60 normal male students to determine the relationship between the Vitamin A content of the blood and the total and differential leukocyte count. They found that with the increase in the vitamin A content the total number of leukocytes tends to decrease. Lymphocytes and monocytes tend to increase and neutrophils and eosinophils decraese. There is a shift to the right in the hæmograms of Arneth and Schilling. Vitamin A deficiency brings about physiologic leukocytosis. It appears that there is some relationship between vitamin A and the general defense mechanisms of the body.

The Diagnostic Value of Inguinal Adenitis in Primary Syphilis

Fowler (*Brit. J. Dermat. & Syph.*, **60**:279, 1948) in view of the differences of opinion as to how early inguinal adenitis develops in primary syphilis, has re-investigated the problem in 116 males with syphilitic chancres of the genitals. The results may be summarized as follows:—Of 18 patients seen within one to three days of the appearance of the chancre, 73 per cent had adenitis when first seen. Of 41 seen within four to six days of the appearance of the chancre, 78 per cent had adenitis. The comparable percentages for the 32 seen within seven to fourteen days, and the 25 seen within fifteen to twenty-one days, were 84 and 100 respectively. In other words, "enlargement of the inguinal glands occurs soon after the chancre appears and in a sufficient number of cases to warrant its being regarded as an important sign in the diagnosis of the chancre." Another interesting and important observation was that in 15 cases there was contra-lateral adenitis alone, whilst in three other cases the inguinal glands on the opposite side to the chancre were larger than those on the same side. As a control, 52 cases of "non-specific infective lesions with adenitis" were investigated, and in none of these was there enlargement of the inguinal glands on the opposite side. It is therefore suggested that "the combination of an infective lesion of the male genitals with enlargement of the glands in the opposite inguinal region alone is strong presumptive evidence of syphilis."

Arsenical Encephalopathy in Indian Troops

Krainer and others (*J. Neurol & Psychiat.*, **16**:171, 1947, Ref. *Am. J. Syph. Gon & Ven. Dis.*, **33**:93, 1947) point out that the incidence of arsenical encephalopathy is much higher in East Indians than among other races and again that it is higher among some groups of Indians than others.

In the Indian Military Hospital at Dunkirk, 1,909 patients received antisyphilitic treatment; thirty-seven, or 1·9 per cent, of these developed arsenical encephalopathy. In the military hospital at Jalahall 2,308 patients were treated for syphilis. Of these, thirty-nine, or 1·6 per cent, developed encephalopathy. All patients were treated with neoarsphenamine, and it was observed that if the drug was given twice weekly, the incidence of this reaction was three times as great. The authors believed that malaria contracted either just before or during treatment with neoarsphenamine was a predisposing cause to the development of encephalopathy. Of the 1,909 patients treated in one hospital, thirteen contracted benign tertian malaria during or shortly before undergoing antisyphilitic treatment. Of these, four had arsenical encephalopathy, an incidence of 30·8 per cent as against 1·9 per cent for the group as a whole. The mortality rate for those treated at the Military Hospital at Dunkirk was 54·1 per cent.

Intestinal Amoebiasis and Respiratory Allergy

Luis Carbi (*Prensa Med.* Argentina., **35**:1477, 1948, Ref. *Trop. Dis. Bull.*, **46**:145, 1949) notes that among 120 patients who were passing *Ent. histolytica* or its cysts there were 12 who suffered from symptoms of respiratory allergy, 3 with spasmddic attacks of asthma and 9 with other allergic symptoms, cutaneous, digestive, nervous, etc. Six cases are described fairly fully. These may be summed up by saying that they showed the usual signs of allergy and tests were made with a large number of substances—dusts, pollens, milk, animal hair, vegetal substances, etc.—with varying results. The usual antispasmodics were tried with perhaps temporary but no permanent benefit. Faecal examination having revealed the presence of *Ent. histolytica* or its cysts, emetine was prescribed and followed by Yatren 105. In each case improvement soon took place and was maintained.

Tropical Eosinophilia in Filariasis

Hartz and Van der Sar, A., (*Am. J. Clin. Path.*, **18**:637, 1948) writes that tropical eosinophilia with excessive leucocytosis, asthmatic bronchitis and sometimes enlargement of peripheral lymph nodes and splenomegaly may be caused by a variety of parasites including Strongyloides sterocoralis, microfilariae of Filaria malayi, microfilariae of Wuchereria bancrofti, and larval mites. The writers report another case of tropical eosinophilia due to microfilariae. The patient complained of a mass in the axilla. There was no gross evidence of filariasis and asthmatic bronchitis was absent. The patient had a leucocytosis of 20,000 with 23 per cent eosinophiles. A biopsy on several enlaged lymph nodes revealed that the lymphoid tissue was almost replaced by plasma cells and infiltrating eosinophilic leucocytes and contained microfilariae. Recovery followed arsenical therapy.

Folic Acid Therapy

Adams and Lawrence (*Am. J. M. Sc.*, **215**:487, 1948) write that results of a study of 34 cases of varying types of blood dyscrasias treated with folic acid show that:

1. Folic acid will correct the abnormal blood findings in cases of pernicious anaemia in relapse.
2. It is likely that the neurologic manifestations of pernicious anæmia are not corrected by folic acid.
3. In pernicious anæmia the reticulocyte response in liver treated patients differs from that obtained in folic acid treated patients.
4. It is probably unwise to combine folic acid and iron in the treatment of pernicious anæmia.
5. Sprue responded favourably to folic acid administration (1 case).

6. All macrocytic anæmias do not respond to the administration of folic acid. In those cases in which there is a megaloblastic arrest in the bone marrow, favourable results can be anticipated.

7. Folic acid did not affect the anæmia associated with chronic nephritis.

8. The administration of folic acid did not alter the leukopenia associated with either Addison's disease or Felty's syndrome (1 case each).

9. The apparent effect of folic acid upon the level of granulocytes in 1 case of thiouracil agranulocytosis and probably coincidence for others have reported no effect.

10. Folic acid had no effect on the leukopenia of idiopathic states.

11. No beneficial effect was noted in 2 cases of leukemia treated with folic acid.

12. Folic acid did not correct the leukopenia induced by roentgen radiation.

Rapid Disinfection of Clean Unwashed Skin

Gardner (*Lancet*, **2**:761, 1948) writes that the power of 2 per cent iodine in 70 per cent ethyl alcohol to achieve virtual disinfection of flat areas of unwashed clean skin in ½ min. or less is confirmed, and it is shown that, if a full 30 sec. is allowed, the iodine may be reduced even 0·5 per cent.

The detergents, zephiran 30 per cent, and cetrimide 10 per cent, both in 70 per cent ethyl alcohol, give satisfactory disinfection in 30-45 sec.

Ethyl ether, chloros, various mercury preparations, and some other substances have either a slower or an otherwise imperfect disinfecting power.

Calciferol and Tuberculous Glands

Gauvain (*Tubercle*, **29**:259, 1948) writes that at the Lord Mayor Treloar Cripples' Hospital, Alton, tuberculous glands are treated by a combination of conservative treatment and surgery, the aim being to obtain healing and quiescence of the glands and then to remove them surgically. Recently this procedure has been supplemented by calciferol, and a report has now been published of the results obtained in twenty-three children and eleven adults who have received calciferol. The dosage given to children was 100,000 units of vitamin D daily chiefly in dry tablet form; adults received 150,000 units daily. In ten children and two adults the first effect of calciferol treatment was a flare-up of the local condition. This was followed by increased peri-adenitis. Of the fourteen children with sinuses, eleven responded well, healing occurring in one to three months. Of the six adults with sinuses, three healed within three months, two within six months, and one in twelve months. The administration of calciferol was accompanied by a rise in the serum calcium to 13-16 mg. per cent, and in the sedimentation rate. Mild toxic symptoms were noted in nine children and two adults, whilst two children and one adult had moderately severe reactions, and one severe reactions. The earliest toxic symptom was constipation; this was followed sometimes by nausea vomiting and anorexia. In adults, thirst and polyuria were sometimes present. Renal efficiency tests were carried out in thirteen children, and four showed temporary renal impairment. The advantages claimed for calciferol are that "it speeds up treatment, quiesences occur more quickly, and therefore surgery may safely take place at an earlier stage. The actual surgical excision is greatly facilitated by the calciferol, as the glands are so discrete and well calcified." It is therefore suggested that the important role of calciferol is as an aid to surgery and that it will be most useful in the treatment of such cases as out-patients.

Use of Parpanit in Rheumatic Diseases of the Joints

Policzer (*Schweiz. Med. Wchnschr.*, **78**:962, 1948) reports on the use of parpanit forte in a small series of cases of rheumatic affections of the joints. The dosage employed was ¼ tablet (0·5 gm. of parpanit forte), six to twelve times daily. The optimum dosage was reached by daily increase of ¼ tablet, beginning with a ¼ tablet twice daily, and thus reaching the highest dosage in two to three weeks. The best results were obtained when the daily dosage was given in six to twelve separate doses. In one case of a forty-three year old man with fever and polyarthritis, stiffness of the joints, with pain on movement and a sedimentation rate of 114 mm/h, improvement was noted after the second day of treatment with parpanit, and after a seventeen-day course he was discharged feeling well, with sedimentation rate of 30 mm/h. The author states that in the small series of cases the effect of parpanit was good; in all cases there was lessening of the muscle rigidity with improvement in active and passive movements. No direct action of parpanit on the pain was observed; probably in those cases in which there was amelioration this could be attributed to the improved mobility of the joints. Nevertheless the improvement obtained in the small series of cases suggests the possibility that parpanit may provide a new type of action in polyarthritis.

P-Aminosalicylic Acid in Tuberculosis

Steinlin and Wilhelmi (*Schweiz med. Wchnschr.* **78**:1219, 1948) report on the use of p-aminosalicylic acid, alone and in combination with streptomycin, in a series of cases of tuberculosis. The drug employed was the synthetic preparation "aminacyl" (Wander), and was first administered in the form of a 20 per cent solution of the sodium salt, but owing to the bitter taste dragees of 0·30 g. were substituted, 10 dragees four times daily, *i.e.*, a total daily dose of 12 g. free p-aminosalicylic acid for four consecutive days, followed by an interval of three days. In cases of tuberculosis of the kidney the total daily dosage was reduced to 6-9 g., and the treatment was carried out continuously for six to eight weeks before a pause of eight to fourteen days. The patients were divided into groups: In the first (24) aminacyl alone was given by mouth, resulting in a decrease in temperature in 15 of 17 with fever before treatment; a decrease in blood sedimentation rate in 14 of 20 patients in whom it was previously raised; increase in haemoglobin in 19; decreased expectoration in 10; 12 of 17 patients with positive sputum were negative after treatment; 17 of the 24 showed increase in weight, and the general condition was improved in 18 patients. The duration of treatment ranged from two to seven months. The second group consisted of 26 patients who were given combined p-aminosalicylic acid and streptomycin therapy, receiving 0·5 g. streptomycin twice daily up to a total dosage of 100 g. Of these patients, 8 showed decrease in temperature; 16 lowered blood sedimentation; 18 increased haemoglobin; 13 decrease in expectoration; 17 negative sputum; 15 increase in weight; 18 improvement in general condition. The treat-

ment in this group also was from two to seven months. The third group (53) received local p-aminosalicylic acid therapy, and in 16 cases oral administration also. A 20 per cent. solution diluted with saline or distilled water to 10 or 5 per cent, or lower, was employed by injection or instillation. Of 47 empyemas positive before treatment, 26 were negative after one to five months. Cavities and fistulae also responded well to local treatment.

Undecylenic Acid Given Orally in Psoriasis and Neurodermatitis

Perlman (*J.A.M.A.*, **139**:444, 1949) presents a preliminary report on a series of 17 patients with chronic psoriasis, both localized and generalized, who were given gradually increased doses of undecylenic acid by mouth for varying periods of time, with definite improvement in the psoriasis characterized by a disappearance of the psoriatic lesions, a permanent relief of the itching complained of and, in several instances, associated with arthropathies, a definite disappearance or improvement the joint pains.

A series of eight patients with neurodermatitis were treated with undecylenic acid by mouth for varying periods of time, with improvement or disappearance of the lesions and itching. Definite claims for undecylenic acid cannot be made from the comparatively small number of patients studied at this time. However, undecylenic acid seems to hold a great deal of promise in the improvement and possible prevention of recurrences of psoriasis and neurodermatitis. It is hoped that this study will stimulate research, clinical and scientific, on undecylenic and other unsaturated fatty acids, in all phases. Under no circumstances should it be accepted at this time as the most effective and only treatment—*U. S. Med. News Letter.*

Discontinuous Therapy with Penicillin

Tompsett and others (*J.A.M.A.*, **139**:555, 1949) made a study of the therapeutic effectiveness of discontinuous penicillin therapy, consisting of one or two daily doses of penicillin in aqueous solution. Since March, 1947, this dosage schedule has been used in the treatment of 125 patients with various acute infections, including 44 patients with pneumococcic pneumonia. From observations thus far made, it appears that this treatment regimen provides entirely satisfactory therapy for the great majority of penicillin-susceptible infections. It should be emphasized, however, that such discontinuous therapy presumably would be inadequate in the treatment of serious staphylococcic infections, bacterial endocarditis and certain other rarely encountered infections which usually require large quantities of penicillin.

Moreover, on theoretical grounds, it is possible that discontinuous penicillin therapy might not be the equal of intensive continuous therapy in the prevention of nonsuppurative complications of group A hemolytic streptococcic infections. Finally, it should be emphasized that, from the observations in two patients with pneumococcic meningitis, the possibility is suggested that certain suppurative complications which occur in patients receiving continuous treatment may occur more frequently if discontinuous treatment is employed.

Nevertheless, the clinical results observed in the treatment of pneumococcic pneumonia and other frequently encountered infections indicate that highly effective penicillin treatment may be provided by discontinuous therapy without the rigid restrictions imposed by conventional dosage schedules and dosage forms, which are based on the concept that continuous levels of drug in the body are required. More extensive clinical trial is necessary, however, to obtain a precise evaluation of the comparative value and the limitations of discontinuous therapy—*U. S. Med. News Letter.*

Treatment of Lead Intoxication

Wilentz (*J.A.M.A.*, **139**:823, 1949) writes that it would seem obvious that the entire therapeutic regimen should be directed toward (1) overcoming the intestinal colic, (2) correcting the anæmia, (3) making the patient symptom free with no disability and (4) returning the patient to a remunerative job as soon as possible.

The following procedures are prescribed for the *acute stage:*

1. Hospitalization or ambulatory, depending on symptoms.
2. If hospitalized, bed rest or ambulatory, depending on colic.
3. High calcium diet.
4. Warm water bag or electric pad for abdominal discomfort.
5. One half to 1 ounce (16 to 31 Gm.) magnesium sulfate every morning on arising.
6. Antispasmodic, such as tincture belladonna, phenobarbital mixture, every four hours, or amprotropine phosphate (syntropan) tablets or hydrochloride of diphenylacetyl diethylaminoethanol (trasentine hydrochloride) and phenobarbital tablets for abdominal discomfort.
7. Ten cubic centimeters of 20 per cent calcium gluconogaloctogluconate solution (new-calglucon) intravenously every four hours.
8. No narcotics advised
9. Complete blood cell count and stippling determination, followed by red blood cell and stipple cell counts taken every three days.
10. Estimation of laed in urine (twenty-four hours specimen) and urinalysis

In the *subacute or convalescent stage*, the following proceeding are prescribed:

1. Regular diet
2. Mild laxatives
3. Calcium wafers
4. Iron and vitamin B complex therapy for anæmia and as a tonic
5. Monthly red blood cell counts and determination of stippling and hæmoglobin
6. No further lead exposure

During the chronic phase, the following routine is followed:

1. Permanent removal from exposure
2. Fresh air occupation (yard gang)
3. Adequate diet
4. Multiple vitamin therapy for fatigue, malaise and the like
5. Laxatives for constipation.
6. Calcium, oral therapy, if indicated.

The author maintains that deleading is not advocated because: (1) it is dangerous, (2) it prolongs hospitalization, (3) it prolongs length of disability and (4) results are uncertain.

Calcium immobilization therapy is advocated because: (1) it is simple and safe, (2) it prolongs hospitalization, (3) it shortens length of disability and (4) results are certain.

It is, therefore, the opinion of the author that until such time as some satisfactory deleading procedure is found, which will be simple, safe and able to shorten present length and amount of disability, he will advocate calcium therapy as the method of choice.

Thrombin in Liver Puncture

Friedrich and Policzer (*Lancet*, 1:523, 1949) write that the greatest risk in liver puncture is haemorrhage. Besides the usual precaution such as absolute rest in bed for 24 hours etc., they have used injection of commercial thrombin in the needle track left after the biopsy specimen has been withdrawn. By February 14, 1949, they had used the technique in 200 cases and no untoward symptoms had been observed. Apart from the effect of thrombin solution they ascribe the freedom from complication in their series to the use of a needle which will not pass deeper then 3 cm. into the liver.

The thrombin is provided in powder form by the Servita Laboratory under the name 'Citostat'. The solvent, put up in separate phials, contains pyrocatechin and calcium chloride to enhance thrombin activity, and sodium chloride and tricresol to ensure sterility and stability. They have obtained the best effects with a solution containing 200 coagulation units in 1 ml. of solvent. A clear solution cannot be obtained, because traces of fibrin are present to form coagulation foci and hasten coagulation.

The liver-puncture needle used by the authors is double, the outer needle being 2 cm. long and 2 mm. in bore, the inner 1·4 mm. in bore and fitted with stylet. The outer needle is graduated in centimeters and a depth-screw is provided to control the depth of the puncture.

Intravenous Administration of Iron

Slack and Wilkindon (*Lancet*. 1:11, 1949) of the department of haematology at the Manchester Royal Infirmary write that with the failure to elicit a therapeutic response with orally administered iron, gastro-intestinal disturbances from iron given in this way and the desire to produce a speedy effect in certain circumstances are all sound indications for parenteral administration of iron. The painful effects of its intramuscular injection have quickened efforts to find a preparation suitable to be given intravenously. The authors describe their trails of many preparations over a long period and their recent success with an iron-sucrose preparation, firstly as prepared by a method devised from their long experience and secondly in a proprietary form known as "Ferrivenin". They have found no detectable difference in tolerance or response in very many batches of either of these two preparations. The scheme of dosage finally adopted was 25 milligrammes on the first day, 50 milligrammes on the second, 100 milligrammes on the third and 200 milligrammes on the fourth and subsequent days, but occasionally a dose of 20 milligrammes was given twice in a day. Only one of sixty patients developed mild reactions at the 200 milligramme level, all others tolerating this dosage well; larger single doses are not recommended. The treatment was usually completed in ten out-patient visits, or less if 200 milligramme doses were given twice daily. All of the sixty patients were suffering from iron-deficiency anaemia; the condition of ten had proved refractory to full doses of iron gvien by mouth over long periods. The clinical and haematological response was initially good in 57 out of the 60 cases and it was at times dramatic. The utilization of the iron appeared to be almost 100 and the supplementary addition of trace elements, ascorbic acid or folic acid was not apparently necessary. Utilization was, however, seriously interfered with in the presence of chronic infection.

Govan and Scott (*Lancet*, 1:14, 1949) of the Glasgow Royal Maternity and Women's Hospital report on the use of "Ferrivenin" in the treatment of anaemia of pregnancy. In addition to intolerance and lack of response to oral therapy, they were confronted with the problem of severe anaemia manifesting itself only in the last weeks of pregnancy and demanding urgent treatment. They used the following general dosage scheme. During the first week injections were given daily, with an initial dose equivalent to 30 milligrammes of elemental iron on the first day, 60 milligrammes on the second day and 100 milligrammes thereafter; at the end of a week injections were reduced to 100 milligrammes on alternate days. A group of 25 patients was treated and the results were compared with those obtained when 62 patients were given iron by mouth. The difference is response was striking, not only in relation to time, but also because with the intravenous therapy succeeding increments of haemoglobin increased, instead of diminishing, as happened with oral therapy. In all cases the intravenous therapy produced a rapid response, the haemoglobin value increasing in almost all cases by 8 per cent in the first week of treatment. Rapid injection of the iron preparation was found to cause venous spasm, but there was no spasm if the solution was introduced gradually. A slight and transient general reaction followed the first or second injection in about 10 per cent of cases, but it did not occur again with further treatment. A severe reaction occurred in only one case; this appeared to be due to vagal stimulation and may have been related to irregular attendance of the patient for treatment; it was, in any case, of only a few minutes' duration and left no apparent after-affects, though further intravenous therapy was not attempted in that case. Altogether the results in this series, as in the series of Slack and Wilkinson, offer encouragement. The immediate efficacy of the therapy seems to have been demonstratel and the unsatisfactory features of earlier efforts are not apparent.

Pleuritic Pain: Use of Intravenous Calcium Gluconate in its Relief

Bennett and Lathem (*Am. J. Med. Sc.*, **215**:433, 1948), write that the old belief is that pain in pleurisy is due to friction of two roughened surfaces. Clinical and experimental observations suggest a more complex mode of origin. The local analgesics like spraying the skin by ethyl chloride, intracutaneous, intrapleural infiltration of novocaine, intercostal nerve block produces often prolonged and occasionally permanent relief of this pain while the local analgesics cannot act for more than a few hours. The authors suggest that the pain is due to spasm of intercostal muscles. These drugs abolish the spasm. Authors tried 10 per cent. calcium gluconate 10-20 cc. intravenously in 25 cases of pneumonia and 5 cases of pulmonary infarction. There was relief in 27 cases of which 4 had permanent relief.

Pharmacological Aids in Psychiatry

Prof. Jean Delay recently visited London to discuss the preliminaries of the International Congress of Psychiatry, to be held under his presidency in Paris in 1950. During his stay Professor Delay addressed the section of psychiatry of the Royal Society of Medicine on the use of drugs in exploring the personality of neurotic subjects and in their treatment. He briefly reviewed the field since Moreau de Louis published his paper on hashish in 1845. Professor Delay's own studies have been chiefly concerned with the barbiturates and with amphetamine and its derivatives. He has found that the barbiturates, which are widely used in "narcoanalysis," have the effect of lowering intrapsychic tension and depressing psychological tonus. 'Methedrine', in contrast to this, increases intrapsychic tension and acts as a stimulant; intravenous injection of 30 mg. produces severe changes, with considerable rise in blood-pressure and emotional stimulation Its effect varies in different mental disorders. Thus in manic illness it produces a violent outburst of excitement, while in depressive states it increases the agitation and misery. If the depressed patient is stuporose, it increases the pressure of anxiety and so makes it possible for him to talk about his feelings and beliefs. Schizophrenic patients respond to methedrine with intensification of any catatonic features they may show; their efficiency in performing intellectual tests is impaired by the drug, but on the Rorschach test their responses become more numerous and prompt. For acute neurotic disorder methedrine helps towards emotional abreaction, and favours the expression of thoughts consciously known to the patient but partially suppressed. Some therapeutic benefit can be obtained by repeated administration of the drug to patients with chronic neurotic illness, though the benefits here are more doubtful; however, the psychasthenic conditions, in which 'Sodium Amytal' has failed, sometimes respond to methedrine. It also has limited use in the treatment of drug addiction, especially in relieving withdrawal symptoms. Professor Delay enlivened his polished address, which was delivered in French, with some vivid clinical narratives, illustrating the effect of narcotic drugs upon the processes of perception.

A survey of the work on methedrine done in Germany and the occupied countries during the war has been compiled by Edmund Tietze.—*Lancet*, 1:574, 1949.

Carcinoma of the Breast

Prof. Adair (*Lancet*, 1:610, 1949) at a meeting of the Section of Surgery of the Royal Society of Medicine with Mr. Julian Taylor, the President in the chair read a paper on Surgery, Irradiation and Hormones in Breast Cancer. He said that at the Memorial Hospital he had had experience of altogether 13,000 cases of breast cancer, including 8,000 which were operable and 125 cases in men. His present survey was based on 3,988 cases studied since 1935,. The method was to apply a certain line of treatment in a series of cases, and at the same time to run a parallel control series treated by surgery alone; the experimental line of treatment was changed from time to time. By this means it had been possible to obtain comparable figures for the results of treatment, and thus to draw certain definite conclusions. In one series radiotherapy alone had been used This form of treatment had an honoured place in the palliation of inoperable cases, but as a method of cure it was only half as effective as surgery alone. In two parallel series with gland involvement treated respectively by X-rays and by surgery, the five-year cures were 26 per cent and 50 per cent. The usual dose had been 3000 r. Admittedly thise dose was not large; viable cancer cells might be found after the application of as much as 3600 r. and 5000-6000 r. was necessary to ensure the total destruction of the neoplasm though such doses seriously damaged the normal tissues, especially bone, skin, and lungs. One striking effect of irradiation of the axilla was the "spotty" action on the involved glands; in one gland there might be complete destruction of cancer cells, while in another immediately adjacent there was no effect at all.

Radical operation was combined with preoperative irradiation in a series of cases between 1934 and 1940. The diagnosis was confirmed by aspiration biopsy, and X-rays were applied in a dose of between 1200 and 3600 r. per portal. Mastectomy was done after an inetrval of from one to six months, depending on the amount of skin reaction. Healing was poor after the larger X-ray doses. The five-year results in cases of cancer confined to the breast showed cure in 74·9 per cent as opposed to 82·2 per cent in those treated by surgery alone. When the axilla was involved, the corresponding figures were 40 per cent and 43 per cent. Dr. Adair believed that these results were the death knell of preoperative irradiation; for him the issue was settled. It was probably the inevitable delay in operation which mainly caused the poor results of preoperative X-ray therapy.

Since 1940 immediate radical mastectomy without any irradiation had been his standard treatment for cases in which the cancer was confined to the breast. A postoperative course of X-rays was given if the axilla was involved, and he thought that the rate of cure was raised by between 3 and 5 per cent by the irradiation. At the same time postoperative X-rays increased the risk of oedema of the arm. This scheme of treatment had produced encouraging results.

The hormone treatment of breast cancer rested on a basis of experimental work in which British investigators had played a leading part. In America an extensive clinical trial had been organised and its results were shortly to be collated. In this lecture Dr. Adair was concerned only with the results obtained at the Memorial Hospital. Here he was director of a team which included, besides doctors, a steroid chemist, a nurse, and a social worker. They used mostly androgens and favoured particularly testosterone propionate. At first they had given 25 mg. a day but more recently they had been trying as much as 200 mg. a day with better results. In addition to the advanced cases treated only by hormones, Dr. Adair had implanted 300 mg. of testosterone propionate at operation in each of 500 cases of radical mastectomy, and most of these had amenorrhoea for six months. Their experience of oestrogens had been smaller and the results less impressive than with the androgens, but he thought that perhaps the dosage (100 mg. stilboestrol three times a week)

had been rather small, for Mathanson, who used much larger doses (200 mg. a day) claimed much better results. It might be that oestrogens yielded their results more slowly than androgens.

On the whole the results of hormone treatment were encouraging, particularly in relieving symptoms. Malaise and dyspnoea were relieved in 85 per cent of cases, and pain in 75 per cent. There was also objective improvement and evidence of regression of secondaries, particularly in liver and bones, and an average increase in hæmoglobin of 25 per cent. The side-effects of hormone treatment were important and sometimes troublesome. Œdema and increase in weight were caused by both androgens and oestrogens. Oestrogens caused nausea in a quarter of the cases, and quite troublesome uterine haemorrhage in some postmenopausal women. Sometimes testosterone therapy caused a severe shock-like condition, due to its powerful effect on calcium metabolism. Secondaries in bone were associated with a rise in the blood-calcium, and the administration of testosterone brought the level back to normal by causing the reposition of calcium in bone; this process of bone repair was also signalised by a rise in the alkaline phosphatase. Histological studies of the effect of hormones on breast cancer showed an almost identical picture with the effect of X-rays—principally nuclear disintegration and voluminous fibrosis.

There sometimes came a time during treatment with androgens when the patient not only ceased to improve that became much worse. If the hormone treatment were now stopped altogether, or oestrogens substituted for the androgens, great improvement might take place. Dr. Adair illustrated this effect with the account of a striking case of a woman who developed crippling bony secondaries several several years after starting treatment with testosterone, and who improved so greatly after the hormone was discontinued that twenty-two months later she was doing her own housework. This effect was not clearly understood but was thought to be due to the adaptation of the body to its artificial hormonal environment.

Dr. Adair thought that the present achievements of hormone therapy gave much hope for the future, and that one of the most promising lines of advance lay with the chemists, who would synthesise new preparations of greater power and selectivity.

Role of D.F.P. in Surgery

Quilliam and Quilliam (*Lancet*, **1**:603, 1949) write that the use of D.F.P. di-isopropyl fluorophosphonate in postoperative paralytic ileus is illustrated in 12 successfully treated cases. The drug should be used as a supplement to other measures.

D.F.P. was thought to be more powerful, more reliable, and more sustained in its action than prostigmin, and it did not give rise to the unpleasant side-effects occasionally encountered with posterior pituitary extract.

D.F.P. was used successfully in 5 cases of postoperative abdominal distension and 4 cases of intestinal obstruction, and postoperative retention of urine. In megacolon and for removing flatus from the abdominal field before radiography good results were not obtained.

A simple biological test to assess the potency of a given sample of D.F.P. is described. This test showed that there was little, if any, loss in potency of the D.F.P. dissolved in arachis oil after storage for up to two years at room temperature.

Dosage and procedure—2-4 mg. of D.F.P. is given by intramuscular injection, dividing the dose equally between two sites to ensure speedy absorption. This is often followed within 2 to 3 hours by defæcation either spontaneously or in response to an enema. If not, the patient should be rested for 12-24 hours, if possible, before the same dose of D.F.P. is repeated. In almost every case this causes defæcation either spontaneously or after an enema. If the case is very urgent a maximum of 2 mg. of D.F.P. may be given 4 hours after the first dose. On some occasions the administration of D.F.P. (and a subsequent enema) may be followed only by the passage of flatus this is considered sufficiently favourable to allow of a longer interval of rest between the two injections for flatus may be the harbinger of faeces. Daily doses are not necessary when D.F.P. is used in this way.

Silent Gallstone: A 10 to 20-Year Follow-Up Study of 112 Cases

Comfort and others (*Ann. Surg.*, **128**:931, 1948) write that since the advent of cholecystography, the problem of the silent gallstone has become an increasingly important one, several pertinent questions are being asked. How often are gallstones silent and how often is the physician confronted with the problem of the silent gallstone? What advice should be given the patient who has silent gallstones? Should he be told to undergo cholecystectomy or should he be told to await development of dyspepsia or colic before submitting to surgical treatment? Should he be urged to undergo cholecystectomy after the first attack of colic or after several attacks have occurred?

Reviewing the literature, Comfort and his associates found wide divergence of opinion and a lack of accurate data on the problem of the silent gallstone. In the hope of supplying some of the data not now available but necessary for decision regarding treatment of the silent gallstone, long-term follow-up study of all cases in which gallstones were found incidentally during the course of some other abdominal operations at the Mayo Clinic was carried out.

The records of 998 such cases occurring from 1925 through 1934 were reviewed. Approximately one-half of these were discarded as unsuitable for long-term follow-up because the operation had been for cancer. Many others, including those with duodenal ulcer, were discarded because some of the abdominal symptoms might have been due to the cholelithiasis. Follow-up letters were sent to 184 persons. Replies were

received from 115. Each patient was asked if digestion or colic had preceded the discovery of the gallstones and several replied that symptoms had been present, so that these, too, were discarded. Finally, 112 cases were considered suitable for study. The average age of the 112 patients was 48·2 years when the gallstones were discovered.

It was found that in 61 cases symptoms did not develop. In the 51 cases in which symptoms occurred, 30 patients complained only of dyspepsia and 21 experienced painful seizures. Five of the 21 patients experiencing painful seizures also had jaundice.

Cholecystectomy may be advised but need not be urged, if the patient prefers to accept the chance of experiencing painful seizures or the increased risk of surgical treatment in the event the complication of calculous disease of the biliary tract appears.

Many patients will prefer to have gallstones removed in order to eliminate the threat of painful seizures or severe complications. Others, knowing the higher risk of surgical intervention should complications develop, will prefer to take the chance that no symptoms will develop. Surgical treatment of the silent gallstone may be classified as optional or elective surgery, but surgical intervention should not be postponed after symptoms, and more especially after attacks of colic, appear.—*U. S. Surg. Notes Letter.*

Treatment of Achalasia Cardiæ with Forced Dilation

Gjertz (*Nordisk Med.*, **39**:1495, 1948, Ref. *J.A.M.A.*, **139**:417, 1949) writes that achalasia cardiae designates a condition in which the passage of food from the esophagus to the stomach is hindered by functional disturbance in the cardiac region with more or less dilatation of the esophagus above the cardia. Most of his 67 patients had been previously treated with spasmolytics without effect, and in a few cases operation had been done with no or transient effect. Forced dilation was carried out in 64 patients with good results in most cases. Follow-up of 45 patients from half a year to seven years showed that 30 were completely or almost completely well; 14 improved, and 1 not improved. Only 6 patients felt that the remaining symptoms affected their general condition and ability to work. Hurst's view that no true spasm is associated with achalasia cardiae seems to be supported. Cases with true spasm in the cardia region were eventually found to be cases of cancer of the cardia or adjacent parts of the stomach.

Syringe Sterilization

During the latter part of the war the Medical Research Council appointed a committee to consider methods of sterilizing syringes, and the result of its labours was the now generally familiar memorandum, The Sterilization, Use, and Care of Syringes (M.R.C. War Memorandum No. 15, 1945. H.M.O.S. London). The chief conclusion reached was that no chemical method can be depended on to sterilize a syringe and that absolute safety can be assured only by dry heat at 160°C. or by autoclaving. The use of certain chemicals was also objected to on account of their possible effects either on medicaments injected or on blood withdrawn for diagnostic tests. Provided that they were applied only to syringes used for aseptic purposes, methods such as simple boiling or immersion in spirit which do not achieve absolute sterility were considered permissible in certain circumstances.

At about the same time an inquiry into the same subject was undertaken in Switzerland by a commission appointed by the Swiss Society of Surgery. Its findings appeared in the form of a monography by one of the members of the commission, Dr. Ernest Baumann. A second edition of this has now appeared and is of particular interest, since it discusses the M.R.C. memorandum at considerable length and disagrees with it in several directions. Dry heat is granted to be an ideal method when feasible, but a higher temperature is recommended: this is stated as 180°—200°C., and the time-honoured Continental indicator of its attainment, the browning of cotton-wool is also mentioned (but not the fact that this roasting of cotton-wool volatilizes tarry material which may condense on the syringe and needle). Autclaving is approved, as also is a similar method almost unknown in this country, that boiling under pressure; this would of course be feasible in any pressure-cooker. The remaining alternative method of absolute sterilization is boiling at atmospheric pressure in a disinfectant solution: this is a procedure suggested for the general practitioner with neither time nor equipment for anything else. Four solutions are suggested—2 per cent sodium carbonate with or without 0·1 per cent of formalin, 2 per cent "desogen" (a quaternary ammonium compound evidently widely used in Switzerland), or 1 in 20,000 "merfen" (phenylmercuric borate). These reagents have to be washed out of the syringe with sterile distilled water before use; and this may seem to some English minds to be a serious objection to such methods, because supposedly sterile distilled water is a notorious source of contamination. If, as suggested, a fresh ampoule is used on each occasion, this danger should be obviated. The Swiss commission has been at great pains to show that such traces of these disinfectants as may remain in the syringe can do no harm, and elaborate pharmacological tests are described showing that adrenaline, insulin, strophanthin, penicillin, and certain vitamins and hormones are unaffected by them.

Four other solutions are specified, two containing formalin, one desogen, and one merfen, in which syringes used only for aseptic purposes and otherwise free from any danger of contamination may be placed between one use and another. This is almost the only concession made in an otherwise strict insistence on methods which can be depended on to ensure absolute sterility. It is interesting that there should be some conflict of opinion between experts in different countries on so apparently simple a matter as this. It would also be interesting to know what proportion of doctors in each country disregard all such recommendations and continue to use methods which all authorities are agreed in condemning.—*Brit. M. J.*

Surgical Treatment of Non-Union of Long Bones

D'Aubigne (*J. Bone and Jt. Surg.*, **31A**:256, 1949) writes that the intramedullary nail provides an excellent method of fixation for certain cases of non-union of the long bones. Its advantages for the femur and humerus are parti-

cularly striking; it reduces the time of immobilization in a case to one month, and affords early rehabilitation of the muscles and joints. This is very important, as these patients have already been confined to bed for many months. However, the Kuntscher nail must be discarded in all cases with previous deep infection, because of the risk of recurrent infection, as well as in those cases in which a large bone defect is present, especially at the femur or tibia. In addition, it must always be combined with a bone graft, firmly fixed to the fragments by screws.

The tibial graft alone is the best method for the tibia (inlay graft) and for the forearm (onlay graft). It must be fixed very firmly. If the onlay method is employed, screws are the best means of fixation.

The cancellous bone taken from the iliac crest is the best mateiral to fill bone defects, if the fragments are firmly fixed either by a tibial graft (for the tibia or femur) or by an intramedullary nail (for the humerus).

In all cases, the bones must be surrounded by healthy soft tissue, made possible by the excision of the fibrous tissues. This tissue must be replaced, where superficial bones are concerned, by a pedicled skin graft made in a preliminary stage. In the case of deeplying bones, replacement is made in the same stage, by approximating the adjacent muscle tissue.

Eye and Joint Diseases

Gotfredsen (*Brit. J. Ophthalmol.*, **33**:261, 1949) gives a clinical analysis of the incidence and symptomatology of concurrent eye and joint diseases. The medical joint diseases which are complicated by eye symptoms (phlyctenular conjunctivitis, scleritis, iritis, and kerato-conjunctivitis sicca) all belong to the type of infective arthritis, partly acute and partly chronic (rheumatic fever, gonorrhoeal arthritis, Reiter's disease, Still's disease, and ankylopoietic spondylitis). The pathogenesis is presumably the same for the eye disease and the joint disease, being probably an allergo-toxic reaction to a primary bacterial or virus infection. This hypothesis is borne out by clinical points of resemblance to various generalized diseases affecting joints, skin and pluri-orificial mucous membranes (conjunctivitis, stomatitis, and affection of external genitals), where an allergo-toxic pathogenesis is certain or likely—Stevens-Johnson's syndrome, Behcet's syndrome foot-and-mouth disease, serum disease, acute disseminated erythematous lupus, and intoxication by heavy metallic salts, notably sanocrysin and arsenicals.

Vascular Action of Pilocarpine, Eserine, Adrenaline and Atropine, and their Influence in Primary Chronic Glaucoma

Cristini (*Brit. J. Ophthalmol.*, **33**:228, 1949) writes that pilocarpine and eserine detetrmine a vasodilatatien and the opening a new capillary districts followed by an increase of the capillary bed without, however, dilating the large vessels. In the light of general haemodynamic knowledge this causes an increase of the sum of resistances in the circulation, in spite of a considerable growth of the circulatory bed. The fundamental corollary to this action is the fall of the mean capillary hydrostatic pressure and, therefore, of the ocular tension, as occurs in primary chronic glaucoma.

Atropine determines a dilatation of the large vessels without any corresponding capilary dilatation, and without opening up new vascular districts. According to haemodynamic laws, this brings about a diminution of the sum of resistances in the circulation, and therefore an increase of the mean capillary hydrostatic pressure, wherever the capillary bed, as in chronic glaucoma, is severely impaired and is no longer able to cope with such difficulties.

Adrenaline determines a dilatation both of the large vessels and of the smaller capillaries, followed by the opening of new vascular districts and by a growth of the circulatory bed. Like atropine, this drug dilates the large arterial vessels, thus diminishing the sum of resistances; but, like pilocarpine and eserine, it opens new vascular reserve sections, thus increasing the capillary surface. But the final resulting effect is the increase of the sum of resistances owing to the growth of the capillary bed, thus bringing about a decrease of the mean capillary hydrostatic pressure, and therefore of ocular tension

Paralytic Poliomyelitis

Russel (*Brit. M.J.*, **1**:465, 1949) gives in the following lines the summary of his observations on 100 cases of poliomyelitis with special reference to the early symptoms and the effect of physical activities on the courses of the disease:

In 100 cases of poliomyelitis the early symptoms have been studied in detail.

The prodromal stage, when present, consists usually of a brief non-specific illness, but neurological symptoms occasionally appear even at this early stage.

The pre-paralytic stage is the most critical period of the disease. Spinal symptoms in "typical" cases begin abruptly, and occurred in 95 of the 100 cases. They are of great value in diagnosis, but are very variable as regards both type and severity.

Two or more phases of the pre-paralytic stage may appear, and paralysis may spread in two or more stages. The spinal symptoms may subside before paralysis develops.

In "atypical" cases the onset of the pre-paralytic stage is vague, and the symptoms of a prodromal stage may appear to merge into the pre-paralytic stage.

An unusual amount of physical activity immediately preceded the pre-paralytic stage in 14 of the 100 cases.

Complete physical rest in bed from the onset of the pre-paralytic stage greatly reduces the danger of severe paralysis. Severe physical activity at this stage is almost suicidal, while the continuance of even average physical activity is dangerous.

The possible effect of trauma in localizing the disease is considered.

During an epidemic physical activity should be avoided entirely in minor illnesses. The highly dangerous belief that malaise and other vague symptoms should be "worked off" by exercise requires correction.

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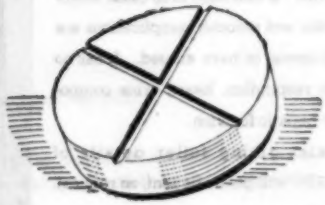

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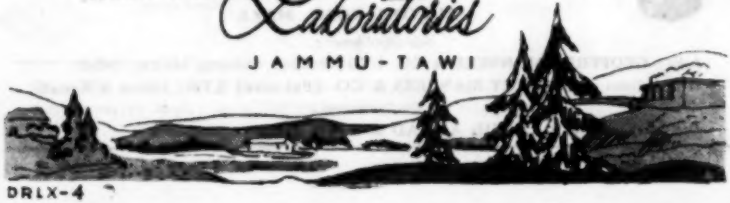

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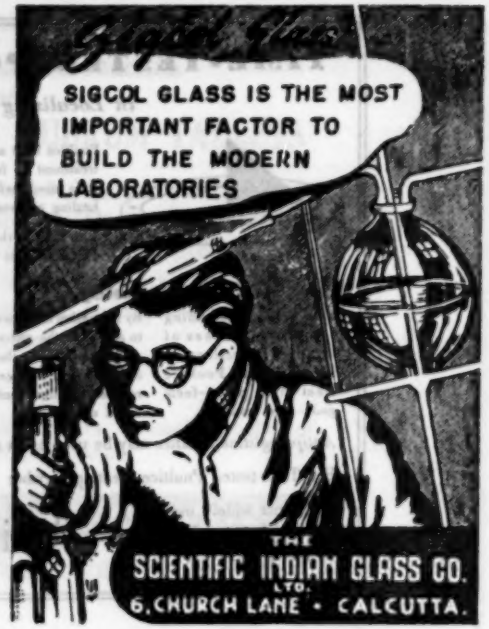
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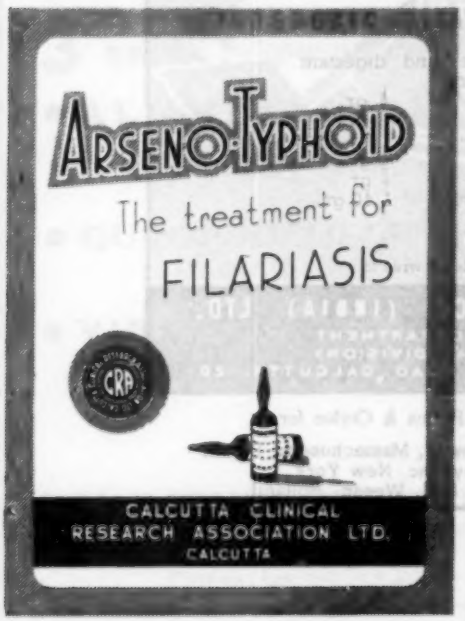

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